Psychological Contracts and Theoretical Cousins: Promises and Fulfillment, Work Orientations and Commitment in the Swiss Armed Forces

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The Faculty of Business, Economics and Informatics of the University of Zurich hereby authorizes the printing of this dissertation, without indicating an opinion of the views expressed in the work.

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The Swiss Armed Forces, represented by the Military Academy, hereby authorizes the printing of this dissertation, without indicating an opinion of the views expressed in the work.

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TO MY WIFE SERAINA

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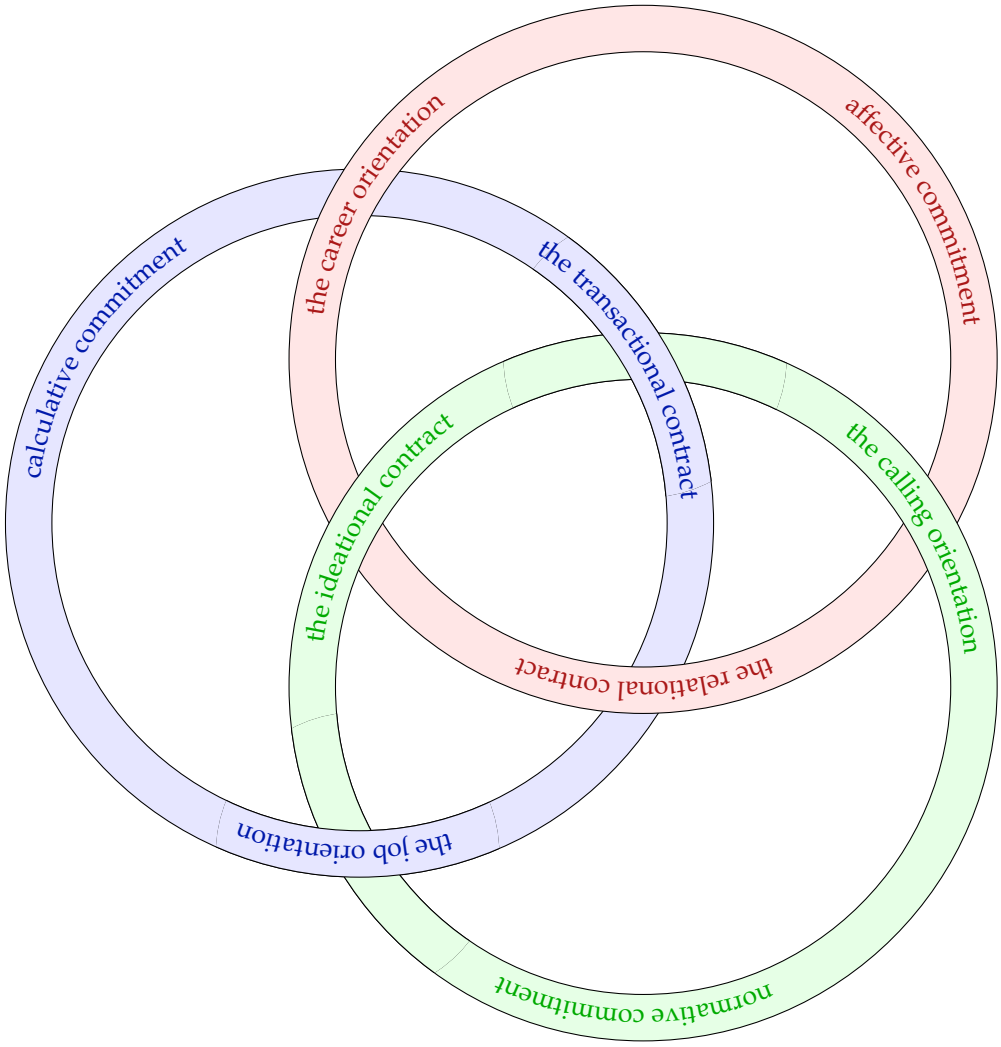
affective commitment
the career orientation
the transactional contract
calculative commitment
the ideational contract
the calling orientation
the relational contract
the job orientation
normative commitment

Abstract

This dissertation is an attempt to describe the Swiss military workforce from the perspective of the individual. By applying established constructs from Organizational Behavior research to a large sample of the Swiss Armed Forces, I am contributing both to the literature of Armed Forces and Society and of Organizational Behavior. On the one hand, Armed Forces and Society is profiting from an alternative view of its classic issues and assumptions, by addressing these with more developed tools. On the other hand, studying a large military sample is beneficial to the field of Organizational Behavior, due to the homogeneity and clear boundary conditions such a sample provides.

The professional identity of military persons has been a common subject of Armed Forces and Society since the founding of the field. Yet questions have often been addressed only by idiosyncratic measures rather than validated scales. Furthermore, both reservists and civilian employees often remain understudied. The application of the *psychological contract*, *organizational commitment*, *vocational commitment*, and *work orientations* adds to the understanding of the diverse workforce in today's armed forces.

The dissertation contributes to Organizational Behavior literature, following the notion of theoretical cousins between different constructs. First, and as a core of the dissertation, I provide evidence for the psychological contract in three dimensions, namely transactional, relational, and ideational layers, across three balanced subsamples of the Swiss Armed Forces with a total of $n = 2\,928$ contributors. This is a substantial corroboration of the recent expansion of the psychological contract construct.

Second, I relate psychological contracts to organizational commitment, referring to Kelman's influence types, and argue that the transactional, relational, and ideational layers of the psychological contract are related to continuance, affective, and normative commitment, respectively. This proposition is buttressed by covariance structure models for $n = 2\,820$ individuals.

Third, I link the psychological contract layers with work orientations. Following the notion of theoretical cousins, I propose that the transactional, relational, and ideational layers are related to the Job, Career, and Calling orientations respectively. Multiple linear regressions for $n = 2\,742$ individuals suggest that relations are significant, but weak, presumably due to the underlying mechanism. Further, I expand the work orientation construct by a fourth orientation, the Profession, following suggestions from the sociology of professions and Armed Forces and Society.

The dissertation adds to the Armed Forces and Society literature, testing classical assumptions by means of Organizational Behavior constructs. First, psychological contracts reveal that the relationship of military professionals, civilian employees, and senior active reservists differ in a significant way. Yet all three layers remain decisive for outcome variables such as work satisfaction and work effort.

Second, comparison of vocational commitment and organizational commitment adds to the suggestion that the military profession is indeed a profession *sui generis*, in economic, socio-emotional, and ideological terms. Yet a comparison suggests that civilian employees may perceive their work similarly in the armed forces.

Third, an expansion of the triad of work orientations by the Profession orientation, following Moskos' (1977a) model, suggests this fourth orientation absolutely dominates the subsample of military professionals, and still has relative majorities in the other samples. Integration of the Profession orientation further reveals that in comparison, Calling has a minor importance. Finally, the evidence suggests that job titles affect work orientations.

The study includes practical implications for the Swiss Armed Forces, the public, and the private sector. Limitations are addressed, and future research directions are suggested.

Abstract (deutsch)

Die vorliegende Dissertation untersucht die Beziehung Schweizer Militärangehöriger zur Armee aus der Perspektive des Individuums. Die Anwendung arbeits- und organisationspsychologischer Konstrukte in einer grossen Stichprobe der Schweizer Armee trägt sowohl zur Militärsoziologie als auch zur Arbeits- und Organisationspsychologie bei. Einerseits profitiert die Militärsoziologie von der alternativen Sicht auf ihre klassischen Fragestellungen und Annahmen, indem diese mit standardisierten Methoden überprüft werden. Andererseits bietet die militärische Stichprobe aufgrund von Umfang, Homogenität und klaren Randbedingungen Vorteile für eine arbeits- und organisationspsychologische Untersuchung.

Die berufliche Identität von Militärs ist seit jeher ein Forschungsgegenstand der Militärsoziologie. Dazu wurden jedoch häufig militärspezifische Fragen anstatt validierter Skalen verwendet. Zudem wurden Zivilangestellte und Reservisten, insbesondere Milizangehörige, bisher kaum berücksichtigt. Etablierte Modelle wie der *Psychologische Vertrag*, das *Organisationale* und *Berufliche Commitment* sowie *Arbeitsorientierungen* können daher helfen, die Vielfalt militärischer Arbeitskräfte besser zu verstehen.

Die Dissertation trägt zur Arbeits- und Organisationspsychologie bei, indem sie den Ansatz von *theoretischen Verwandtschaften* zwischen verschiedenen Konstrukten aufgreift. An erster Stelle steht der Psychologische Vertrag in drei Dimensionen, namentlich einer transaktionalen, einer relationalen und einer ideellen Ebene. Diese in den letzten Jahren aufgekommene Erweiterung wird durch eine Erhebung bei insgesamt $n = 2\,928$ Berufsmilitärs, Zivilangestellten und Milizkadern untermauert.

Zweitens wird der Psychologische Vertrag mit dem Organisationalem Commitment vernetzt. Dies erfolgt unter Einbezug der Einflusstypen nach Kelman. Dabei wird der transaktionale, relationale und ideelle Psychologische Vertrag jeweils mit kontinuitätsbezogenem, affektivem und normativem Commitment in Beziehung gesetzt. Die entsprechenden Aussagen werden durch ein Kovarianzstrukturmodell anhand von $n = 2\,820$ Individuen gestützt.

Drittens wird der Psychologische Vertrag mit Arbeitsorientierungen verknüpft. Dem Ansatz der theoretischen Verwandtschaften folgend entspricht der transaktionale, relationale und ideelle Psychologische Vertrag einer Job-, Karriere- respektive Berufungs-Orientierung. Multiple lineare Regressionsmodelle für $n = 2\,742$ Individuen zeigen, dass diese Zusammenhänge zwar signifikant, jedoch nur schwach ausgeprägt sind. Zusätzlich wird die Typologie um die Profession als vierte Orientierung erweitert, um vergleichbare Modelle der Berufssoziologie und der Militärsoziologie zu integrieren.

Die Dissertation trägt zur Militärsoziologie bei, indem sie deren klassische Annahmen anhand arbeits- und organisationspsychologischer Konstrukte überprüft. Erstens zeigt die Untersuchung der Psychologischen Verträge auf, dass sich Berufsmilitärs, Zivilangestellte und Milizkader in ihrer Bindung zur Schweizer Armee signifikant unterscheiden. Dabei bleiben bei sämtlichen Teilstichproben alle Vertragsebenen für Zielvariablen wie die Zufriedenheit oder den Arbeitseffort relevant.

Zweitens stützt ein Vergleich des Beruflichen und des Organisationalen Commitments die Annahme, dass der militärische Beruf tatsächlich ein Beruf *sui generis* ist, und zwar sowohl in ökonomischer, sozio-emotionaler, als auch in ideologischer Hinsicht. Überdies legt ein Vergleich nahe, dass Zivilangestellte der Schweizer Armee ihre Arbeit ähnlich wahrnehmen.

Drittens weist in der erweiterten Typologie der Arbeitsorientierungen die Professions-Orientierung bei den Berufsmilitärs absolute und in den übrigen Teilstichproben relative Mehrheiten auf. Die Berufungs-Orientierung spielt hingegen in allen Teilstichproben nur eine untergeordnete Rolle. Schliesslich ist ein Einfluss der Berufsbezeichnungen auf die Arbeitsorientierung nachweisbar.

Die Studie beinhaltet praktische Folgerungen für den öffentlichen und den privaten Sektor im Allgemeinen sowie für die Schweizer Armee im Besonderen. Die Beschränkungen der Untersuchung werden diskutiert und zukünftige Forschungsmöglichkeiten vorgeschlagen.

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List of Abbreviations

Contextual abbreviations

affe, a	affective
AC	affective commitment
ALB	Army-life balance
A Stab,...	a list of organizational units is provided in table 3.13
AVF	All-volunteer force
Br inf 2,...	a list of Grand Units participating in the survey is provided in table 3.13
cont, c	continuance
CC	continuance commitment
CHF	Swiss Francs
civ.	civilian employees (Zivilkader)
D, F, I	German speakers, French speakers, Italian speakers
D	delivered fulfillment
F	contract fulfillment
HR	Human Resources
ideat, i	ideational
I/O model	Institutional/Occupational model
jb/cr/cg/pn	Job/Career/Calling/Profession
MILAC	Military Academy at ETH Zurich
norm, n	normative
NC	normative commitment
NCO	non-commissioned officer
NCOS	Professional NCO School of the Armed Forces
OF	officer
OC	organizational commitment
P	promised fulfillment
pro.	military professionals (Berufsmilitär)
PTE,...	a list of ranks is provided in table 2.2
SD-I	Social desirability-Impression Management
SNCO	senior non-commissioned officer
trans, t	transactional
TCM	Three-component model (of commitment)
relat, r	relational
res.	senior active reservists (höhere Milizkader)
VC	vocational commitment
WE	work effort
WFC	work-to-family conflict
WO	work orientation
WOS	work orientation strength
WO3	work orientation triad
WO4	work orientation tetrad
WS	work satisfaction
TI	turnover intention

Technical abbreviations

α	confidence level, scale reliability (depending on the context)
ADF	asymptotic distribution-free
ANOVA	analysis of variance
CFA	confirmatory factor analysis
CI	confidence interval
CLF	common latent factor
CMB	common method bias
Δx	difference in the variable x
df	degrees of freedom
e	error term
EFA	exploratory factor analysis
E. K.	excess kurtosis
$k, \hat{r}$	number of studies, true sample correlation (in meta-analyses)
λ	factor loading
PAF	principal axis factoring
PRA	polynomial regression analysis
μ	mean, eigenvalue (depending on the context)
MI	multiple imputation
MAR	missing at random
MCAR	missing completely at random
ML	maximum likelihood
MNAR	missing not at random
n	sample size
N	population size
p	probability
r	correlation coefficient
S. D.	standard deviation
S. E.	standard error
V_C	Cramér's V

Legal abbreviations

AO	Ordinance of the Federal Assembly on the organization of the Armed Forces (Armeeorganisation)
BV	Federal Constitution (Bundesverfassung)
BPG	Federal Personnel Act (Bundespersonalgesetz)
BPV	Ordinance on the Staff of the Confederation (Bundespersonalverordnung)
DR 04	Main Service Regulation of the Swiss Armed Forces (Dienstreglement 04)
EOG	Federal act on service and maternity allowance (Erwerbsersatzgesetz)
FADG	Federal act on data protection (Datenschutzgesetz DSG)
FOPER	Federal Office of Personnel (Eidgenössisches Personalamt EPA)
MDV	Ordinance on compulsory military service (Militärdienstverordnung)
MG	Swiss Military Code (Militärgesetz)
MStG	Swiss Military Penal Code (Militärstrafgesetz)
SR	Classified Compilation of the Swiss Federal Law (Systematische Rechtssammlung)
V Mil Pers	Departmental ordinance on the military staff (Verordnung Militärisches Personal)

Chapter 1

Research Questions and Dissertation Structure

For not everything seems to be loved but only what is lovable,
and this seems to be what is good, pleasant, or useful.

The Nicomachean Ethics (Aristotle, 350 B.C./2011)

. . .besides normative motives, economic interests and social inducements
always act a part in the vocational choice of soldiers.

Beruf: Soldat [Profession: Soldier] (Leonhard & Biehl, 2012)

Why does someone work for the armed forces? Presumably the reasons for this are not fundamentally different from any other person opting for a specific vocation. In terms of Leonhard and Biehl (2012), normative motives may be decisive; Aristotle (350 B.C./2011) would have named the good, meaning «the higher level of human goods, ‹moral goods›, . . .pursued for their own sake» (González & Guillén, 2008). Whether in contrast or in addition, economic interests play a role as well; in Aristotle's term, the choice may simply be useful. Finally, if social inducements may account for the decision, the appeal of the military community may seem pleasant to the prospective soldier. Using the metaphor of *currencies* (Thompson & Bunderson, 2003; Macneil, 1985), the future soldier seeks the exchange of economic, socio-emotional, or ideological currency – and often, of several currencies simultaneously.

The work identity of soldiers has been one of the key subjects in Armed Forces and Society[1] (Collmer, 2010; Leonhard & Biehl, 2012; Gareis & Klein, 2006, part VI). Yet military studies often use idiosyncratic measures rather than referring to established constructs from Organizational Behavior (Gade, 2003; N. J. Allen, 2003).

Investigating and answering questions in Armed Forces and Society by means of Organizational Behavior tools is one of the two guiding lines in my dissertation. Applying psychological contract theory (Rousseau, 1989), organizational and vocational commitment (N. J. Allen & Meyer, 1990; Meyer, Allen, & Smith, 1993), and work orientations (Wrzesniewski, McCauley, Rozin, & Schwartz, 1997), this dissertation aims at understanding the relationships between military organizations and involved individuals.

This aim, beyond doubt, risks that many readers will close the book on the spot, because they are not Swiss, or they are not military, or because they already belong to the Swiss Armed Forces, but have their own individual perspective. Yet I suggest not taking Wachtler's (1986) *Deterrence as profession* («Abschreckung als Beruf») too literally, and refrain from closing this dissertation at once. As a matter of fact, this study is *quite* civilized, and transferring knowledge from military to civil management has a long and fruitful history.

Thus I suggest both civilian practitioners and civilian scholars may profit from the examination of this seemingly military problem. At an organizational level, business *companies* – note the diction – have learned from military organizations through institutional isomorphic changes (DiMaggio & Powell, 1983). Terms and concepts such as the distinction between staff and line have their roots in their military equivalents (Janowitz, 1961, p. 26). Functions such as the chief executive officer reflect a military wording. Concepts such as the *war* for talents (Chambers, Foulon, Handfield-Jones, Hankin, & Michaels III, 1998) or *strategic* management are borrowed from the military context (Bracker, 1980). Yet parallels are not limited to an executive level. At an individual level, members of the Swiss Armed Forces are human beings with feelings, needs, preferences and interests, just as in the private or public sector.

Investigating the intricate relationships between different Organizational Behavior constructs is the other of two guiding lines in my dissertation. The three large and quite homogeneously formed subsamples of military professionals, civilian employees, and senior active reservists are ideally suited

1 Following (Janowitz, 1961), I prefer this more inclusive term for the field of social studies in armed forces, instead of *military sociology*.

to test assumptions about how psychological contracts, organizational and vocational commitment, and work orientations are related to each other. Thus, the present dissertation follows two interwoven, inseparable lines. The three main chapters 4, 5, and 6 each address two research questions, one from either guiding line. Research questions 4.1, 5.1, and 6.1 mainly take an Organizational Behavior perspective. In contrast, research questions 4.2, 5.2, and 6.2 also include an Armed Forces and Society perspective. All research questions are provided in table 1.1.

Table 1.1: Overview of the research questions

No.	Research question	Source
4.1	What is the nature, content, and structure of the psychological contract construct, and how is it best measured?	Rousseau (1990) Thompson and Bunderson (2003)
4.2	How does the psychological contract of military professionals, civilian employees, and senior active reservists within the Swiss Armed Forces differ in generalizability and outcomes, and what applications can be derived from these differences?	Schurer Lambert et al. (2003)
5.1	How do the three components of organizational commitment relate to the three layers of the psychological contract, in theory and in practice?	N. J. Allen and Meyer (1990)
5.2	How do the relationships between organizational commitment and the psychological contract differ from the relationships between vocational commitment and psychological contract among military professionals and civilian employees?	Meyer et al. (1993)
6.1	What does a complete typology of work orientations consist of, how is such a typology related to other constructs and theories, in particular to psychological contract theory, and how can such work orientations best be measured?	Wrzesniewski et al. (1997) Moskos (1977a) Wilensky (1964) Caldwell (2002)
6.2	Depending on their work orientations, how do senior members of the Swiss Armed Forces differ in terms of organizational and individual characteristics? Which outcomes are associated with the respective work orientations, and how are these work orientations affected by job titles?	

Research question 4.1 addresses the nature, content, and structure of the *psychological contract* (Argyris, 1960; Levinson, Price, Munden, Mandl, & Solley, 1962; Schein, 1965), as well as its measurement. This is the core of chapter 4, and in fact the core of the whole dissertation. Since Rousseau's (1989) reconceptualization, the psychological contract may be seen as «an employee's subjective understanding of promissory-based reciprocal exchanges» (N. Conway & Briner, 2005, p. 35) between him and the organization. Rousseau (1989) made a distinction between the transactional contract – narrow, close-ended, with an economic focus – and the relational contract – pervasive in scope, open-ended, and with a socio-emotional focus. Yet Thompson and Bunderson (2003) suggested a third dimension of psychological contracts, the ideational contract, subject to the exchange of ideological currency (p. 571). Following a suggestion by Petersitzke (2009), I integrate mental models (Johnson-Laird, 2004) and social exchange theory (Blau, 1964) to build a theoretical foundation. The contract then is measured based

on existing scales (Rousseau, 2000; Bingham, 2005), but with an improved technique. I use polynomial regression analysis (PRA; Edwards & Parry, 1993), but I apply it to promised inducements and fulfillment, instead of promised and delivered inducements (Schurer Lambert et al., 2003), addressing both the issues of difference scores and of missing direct measures when using PRA conventionally in psychological contract research (N. Conway, Guest, & Trenberth, 2011) .

Based on the measurement of the psychological contract, research question 4.2 asks how these contracts are distributed among military professionals, civilian employees, and senior active reservists. Several propositions from Armed Forces and Society and mere logic are tested, for instance that senior active reservists have lower transactional contracts than employees. Moreover, fulfillment and promised inducements of each contract layer is related to organizationally relevant outcomes, such as work satisfaction or work effort.

In chapter 5, research question 5.1 asks how the three components of organizational commitment, that is continuance, affective, and normative commitment, relate to psychological contracts. The relationship between organizational commitment and the psychological contract was long claimed to need additional theorizing (Wayne et al., 2009); the present study suggests relating the two constructs referring to an earlier representation of commitment, namely by Kanter (1968), and to refer to Kelman's (1958) influence types. The suggestions are then studied using covariance structure models. In addition, measuring the three-component model of organizational commitment in all three subsamples is a test for the «micro generalizability» of organizational commitment, answering the claim by Jaros (2007, p. 16).

Research question 5.2 refers to an adaptation of the organizational commitment to another focus, where individuals are not primarily committed to their organization, but to their vocation (Meyer et al., 1993). *Vocational commitment*[2] usually refers to a social entity detached from the organization. However, for military professionals, this is likely to be different, because a change in organization is always a change in vocation for a military professional. In the inner-Swiss debate, this circumstance has been referred to as *Monopolberuf* (Meier, 1996), yet more correctly, it is a classic monopsonistic market situation, where only one buyer for the professional's labor exists (Manning, 2003). In this sense, chapter 5 involves comparison between the vocational commitment-psychological contract relationship and the organizational commitment-psychological contract relationship, to determine to what extent the military profession is a profession *sui generis* (Downes, 1985), or just another job (Apelt, 2006).

Research question 6.1 starts with the triadic work orientations suggested by Wrzesniewski et al. (1997), a typology based on a sociological study (Bellah, Madsen, Sullivan, Swidler, & Tipton, 1985). As an extension of this, chapter 6 investigates whether this typology is complete, or how it may be merged with other typologies. In addition to the Job, Career, and Calling orientation (Wrzesniewski et al., 1997), Armed Forces and Society suggests another typology, namely Occupation, Profession, and Calling (Moskos, 1977a). Similarly, sociology of professions suggests the Careerist, the Professional service expert, and the Missionary. The completed typology is then subjected to Thompson and Bunderson's

2 Mostly, *occupational commitment* is used to refer to this focus; however, to prevent confusion with the *Institution/Occupation-Model* (Moskos, 1977b), playing a crucial role in chapter 6, I chose this alternative denomination instead.

(2003) notion of theoretical cousins, suggesting Job, Career, and Calling correspond to the transactional, relational, and ideational contract.

Research question 6.2 refers to the now comprehensive typology and explores the impact of different work orientations on organizationally relevant findings, to judge the desirability of the different orientation. Given the apparent shortcomings of the original measure (Dik, Eldridge, Steger, & Duffy, 2012), I develop refined and alternative techniques to test several assumptions of Armed Forces and Society by referring to the work orientation tetrad. Such assumptions include sample-specific or unit-specific differences, such as between branches (e. g., Infantry vs. Logistics), or across series of individuals (civilians vs. professionals). Given that some of the job titles in French and Italian explicitly refer to one of the work orientations, a test of a potential impact of job titles on work orientations (Caldwell, 2002) suggests itself.

To account for all these questions, the rest of the dissertation is structured as follows: *Chapter 2* provides an introduction to the reader unfamiliar with the field of Armed Forces and Society in general, or with the Swiss Armed Forces in particular. *Chapter 3* details methodological aspects, namely the research setting, population characteristics, descriptions of the questionnaire and the translation procedure, sample statistics, measurements, and technical elements concerning imputation as well as exploratory factor analysis. These points are common to all subsequent analytical sections of the dissertation and are therefore concentrated in one preceding section.

Chapter 4 introduces the core construct of the theoretical framework, the psychological contract as developed by Rousseau (1989), but in its three-layer version proposed by Thompson and Bunderson (2003) and empirically validated for a first time by Bingham (2005). By its means, differences within and across different subsamples are drawn in order to describe the very nature of these varying affiliations to the military organization. By means of polynomial regression analysis, perceived contract *fulfillment* and perceived *promised inducements* are taken into account simultaneously in order to relate different outcomes, namely work satisfaction, turnover intentions, and work effort to the psychological contract.

Chapter 5 leads into the second construct, organizational commitment. The well-known three-component model (Meyer, Bobocel, & Allen, 1991), is put in relation to the preceding construct of the psychological contract in three layers. The main hypothesis is that each of the three components of organizational commitment corresponds to one layer of the psychological contract. In doing so, only perceptions of psychological contract *fulfillment* are taken into account. The second part of the chapter tests to what extent the findings can be translated into vocational commitment.

Chapter 6 is the third main chapter, introducing work orientation as the last core construct. In contrast to the previous chapter, it is linked to the *promised* inducements of the psychological contract. Work orientations are conceptualized in 4 types, expanding Wrzesniewski et al.'s (1997) triad with a 4th type proposed in military sociology (Moskos, 1977a). However, I suggest only the types of Wrzesniewski et al.'s (1997) be linked with the three layers of the psychological contract.

Chapter 7 concludes the dissertation, providing a summary of the findings, again taking up the limitations of the study and examining future research perspectives implied by the work. Further,

it suggests additional theoretical cousins to the psychological contract, and it is rounded off with a conclusion.

Appendix A presents the full list of items in German, French, and Italian, both for employees and for senior active reservists. Appendix B includes two measures as suggestions for further research. The first measure may be used to assess the degree of convergence, or divergence between two constructs. The second measure is a particular application of the first one to assess the degree of *cognitive monopsony* (see also chapter 2.2.4).

Figure 1.1 provides a graphic overview of the dissertation.

Introductory part	Chapter 1: Research Questions and Dissertation Structure
	Chapter 2: Armed Forces and Society
	Chapter 3: Methods
Main part	Chapter 4: Three Layers of Psychological Contracts
	Chapter 5: Three Components of Organizational Commitment
	Chapter 6: Four Types of Work Orientations
Final part	Chapter 7: Final Remarks
	Appendix A: Item Catalogue
	Appendix B: Matrix Algebra

Figure 1.1: The structure of this dissertation.

Chapter 2

Armed Forces and Society

The trend toward the employment of contract civilians to perform military tasks could be the culmination of occupational ascendancy in the military purpose.

From Institution to Occupation: Trends in Military Organization (Moskos, 1977b)

The military administration tries to avoid recruiting professionals to perform tasks that can be performed as well by temporarily conscripted civilian specialists. . . .the small number of civilian employees appointed to the permanent staff of the armed forces may be explained by the adherence to the militia system.

Switzerland: Between Tradition and Modernity (Haltiner & Hirt, 2000)

Military sociology includes studies of civil-military relations, the armed forces as an organization, as well as the military profession, military subjects, and the application of organized violence in wars and and conflicts (Collmer, 2010). Consequently, it is a multidisciplinary field, dealing with aspects of sociology, psychology, ethnology, philosophy, ethics, theology, history and economics (Leonhard & Werkner, 2012, p. 23). Janowitz, whose epochal book *The Professional Soldier* (Janowitz, 1961) contributed to the foundation of the field, preferred the label *Armed Forces and Society* as a more inclusive term (Moskos, 1989). For most of my dissertation, I adapt this notion; at times, to emphasize parallels with the sociology of professions (Pfadenhauer & Sander, 2010), I refer to *military sociology* instead.

For those readers unfamiliar with the field of Armed Forces and Society in general, and with the Swiss Armed Forces in particular, chapter 2 provides the background information suited to embed the present study in the proper context of practice and research.

2.1 The Swiss Armed Forces

2.1.1 Basic facts and figures

The Swiss Armed Forces, often referred to as the Swiss Army, are the national military organization of the Swiss Confederation. The Swiss Armed Forces are considered as an integral part of the Swiss security policy (Swiss Federal Council, 2010, subsection 5.2). Both its form and missions are given by article 58, paragraphs 1 and 2, respectively of the Swiss constitution (BV, 2016):

> [1]Switzerland shall have armed forces. In principle, the armed forces shall be organized as a militia.
> [2]The armed forces serve to prevent war and to maintain peace; they defend the country and its population. They shall support the civilian authorities in safeguarding the country against serious threats to internal security and in dealing with exceptional situations. Further duties may be provided for by law.

In the next article 59, paragraph 1 holds that «Every Swiss man is required to do military service» and paragraph 2 says that «military service is voluntary for Swiss women». The issue of conscription was subject to a national referendum in 2013, when 73.2% of the Swiss voters rejected its abolition. The particular organizational principle of the Swiss Armed Forces is referred to as the *Milizprinzip*; officially translated as *militia*. However, to preclude any confusion due to the connotation of a *militia* as irregular units, I use the term *senior active reservists* for militia officers and militia NCOs throughout the dissertation (Szvircsev Tresch, 2011; Beck & Staffelbach, 2008). Only when I refer to the particular Swiss model, as in this chapter 2, do I occasionally refer to the *militia*. This use of terminology, however, needs clarification before we proceed (Haltiner & Hirt, 2000, p. 206):

> The militia does not constitute a reserve army: During his total time of service, the militiaman remains a regular member of a war formation, with personal equipment and automatic rifle (…) at home, and constant compulsory target practice.

Thus its *active* nature is more than an attribute of the reserve. This notion is central in distinguishing the Swiss system from other armed forces.

The Supreme Commander of the Armed Forces, ranked as a (4-star-)general, is elected by the Federal Assembly only in case of great crisis or war (BV, 2016, art. 168; MG, 2016, art. 85). In peacetime, the Chief of the Armed Forces, currently LTG André Blattmann, is responsible for command and control of the Swiss Armed Forces. Seven organizational units report directly to the Chief of the Armed Forces. Besides the two major service branches, the Land Forces and the Air Force, there are the Armed Forces Staff, the Armed Forces Joint Staff, the Armed Forces College, the Armed Forces Logistics Organization[3] and the Armed Forces Command Support Organization. I refer to these entities as *Organizational Units*. As a land-locked country, Switzerland maintains no Navy, only a flotilla of motor boats patrolling on the boundary lakes.

In addition to the ongoing active reserve system, the Swiss Armed Forces are organized into a very particular form, different from an all-volunteer force (AVF) or a standard conscription model (Szvircsev Tresch, 2005; Haltiner, 1998, p. 22). Whereas conscription refers to a constitutional obligation or draft, *active reserve* implies that soldiers do not fulfill their service all at one time.[4] After the fulfillment of their 18 – 21 weeks of basic training, soldiers serve for 3 – 4 weeks a year, comparable to the United States Army National Guard and Air National Guard, until they have fulfilled their legal obligation of 260 days of service, or reach the age of 34. However, day and age limitations vary according to rank.

Crucial to the militia system, the active reserve is not restricted to soldiers and NCOs. On the contrary, the vast majority of Swiss officers are active reservists. Active reserve officers may serve in the Swiss Armed Forces at basically any rank without ceasing their civil employment. In practice, this means that a battalion commander is only on duty for 4 weeks a year, while working in the private sector or at public administration for the rest of the year.

In 2015, the Swiss Armed Forces numbered a total of 170 369 men and women, including 17 120 officers, 5 348 SNCOs, and 24 169 NCOs (Swiss Armed Forces Joint Staff, 2015, p. 7). The official report further reveals that 1 083 are women, and that German speakers are slightly overrepresented (79% of all ranks, in comparison to 74% of the population; p. 8). Professional soldiers, usually referred to as career officers and NCOs, constitute only about 1.5% of the military staff. However, they make up an increasing share in the higher ranks (see chapter 2.1.2.3 for more details).

In addition to the 3 364 military professionals employed in 2015, the Swiss Armed Forces comprises 6 149 civilian employees, of which more then half work in the Armed Forces Logistics Organization, for example as logisticians or mechanics. However, civilian employees can be found in basically any organizational unit, such as administrators in the Land Forces, HR specialists in the Armed Forces Staff, IT specialists in the Command Support Organization or scientific assistants and lecturers in the Armed Forces College. The shares may be estimated from the sample statistics in chapter 3.5.3, table 3.13.

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3 In official translations, the Swiss Confederation adheres to British spelling. In contrast, the present dissertation adheres to American spelling. Thus, for reasons of consistency, I write *Armed Forces Logistics Organization* instead of *...Organisation*, and so forth.

4 The Swiss Military Code permits recruits to fulfill their service all at one time, if they opt for it and if there is a demand, e. g. for readiness units. This form of service is limited to 15% of year of birth (MG, 2016, art. 54a, 3).

In a nutshell, there are three subsamples with a lot of background variables in common, but marked and invaluable differences to this study in terms of both military sociology and Organizational Behavior: senior active reservists, military professionals and civilian employees. The next chapter provides a short introduction of these subpopulations of the Swiss Armed Forces.

2.1.2 Members of the armed forces

To balance the large amount of statistics and legal information with the actual human beings behind these facts and figures, I intersperse comments from the 2 991 participating individuals throughout, referring to the comment box located at the end of the survey. Accordingly, these statements do not form a representative collection; they contain what military professionals, civilian employees, and senior active reservists «just wanted to say». Furthermore, I do not provide a representative selection of all comments received; rather, I chose those which illustrate the topics best.

In the next subsections, box 2.1 provides comments about military professionals, box 2.2 cites remarks concerning civilian employees, and box 2.3 presents statements regarding senior active reservists. In chapters 3 to 6, similar boxes appear, to reflect the thoughts of the human beings behind the means and variables. To maximize authenticity, I kept the quotations in their original language, and with only minor corrections of spelling or grammar mistakes.

2.1.2.1 Military professionals. About one third of the Swiss Armed Forces' employees are military professionals, of which Swiss military law recognizes two kinds: military professionals (Berufsmilitär, MG, 2016, art. 47) in the strict sense, and contracted personnel (Zeitmilitär, ibid.). Throughout the dissertation, the term *military professionals* includes contracted personnel; I use the term in the broader sense. Article 47 further distinguishes between professional officers (Berufsoffizier), professional NCOs (Berufsunteroffizier), and career soldiers (Berufssoldat), employed under permanent contracts; and contracted officers (Zeitoffizier), contracted NCOs (Zeitunteroffizier), and contracted soldiers (Zeitsoldat), employed under fixed-term contracts.

Regulatory law (V Mil Pers, 2016) further differentiates within professional officers and professional NCOs. In practice, these subcategories are more crucial than the main categories, with regard to their distinctive features. For instance, specialized career officers and career officers both belong formally to the category of professional officers, and specialized career NCOs and career NCOs both are considered professional NCOs. However, specialized career officers and specialized career NCOs have much more in common. They work on particular tasks (e. g., military security), have regulated working hours, do different professional educations, and usually wear olive green uniforms. In contrast, career officers and career NCOs may work in any organizational unit in the Swiss Armed Forces, have unlimited working hours, receive their professional education from the Armed Forces College (V Mil Pers, 2016), and wear camouflage.

Consequently, in practice, as well as in the scope of this dissertation, it is useful not to differentiate according to superior law (MG, 2016), but rather based on practical differences found in regulatory law

Box 2.1: Survey participants reflecting the status of military professionals

«Den BM wurde in den letzten Jahren Vieles gestrichen.» [no. 656]

«Man soll aufhören das BM zu verwöhnen.» [no. 920]

« Nous avons un beau métier. Actuellement, les servitudes d'horaires irréguliers et l'éloignement du domicile en lien avec notre profession de militaire de carrière posent régulièrement des problèmes pour s'occuper d'un enfant, dans un couple où les deux parents sont actifs à 100%. Le nombre importants de places vacantes ou de postes occupés par des militaires contractuels (donc limités dans leurs heures de travail hebdomadaires) obligent les militaires de carrière à assurer des présences tôt le matin, en soirée et durant les weekend. (…) enfin, notre système devrait prendre encore plus en compte les compétences avant l'âge ou le grade. Merci! » [no. 1143]

«Wir Berufsmilitärs machen uns das Leben selber schwer. Wir führen komplexe und unnötige Prozesse ein und stellen permanent einen extrem hohen Anspruch an unsere Arbeit und an die Qualität der Ausbildung/Truppe. Dabei haben wir keine Zeit mehr, um uns an vollbrachten Leistungen zu erfreuen, sondern kämpfen schon wieder mit den nächsten drei Problemen.» [no. 1380]

(V Mil Pers, 2016; Funktionsbewertungsverordnung VBS, 2016; MDV, 2014). Table 2.1 gives an overview of the different categories with characteristics relevant to the dissertation. Career soldiers and contracted soldiers are not taken into account, because the dissertation focusses on seniors (see chapter 3.2).

In the next paragraphs, I will focus on career officers and career NCOs, who represent the majority of military professionals in the population and in the sample (namely, 65.4%; see table 3.15 for % shares of all vocational groups). I present main responsibilities, basic training, embeddedness in the active reserve system, and two characteristics noteworthy from a research point of view.

The Swiss Main Service Regulation holds that military professionals are charged with training, education, leadership, and mission tasks (DR 04, 2015, art. 27, 2). Consequently, the vast majority of military professionals is engaged in one of the recruit schools or training schools of the different branches. Smaller shares of military professionals are assigned to the Armed Forces College or in the Headquarters (Armed Forces Staff, Armed Forces Joint Staff) and in the Support Organizations (Logistics and Command Support). The share of military professionals, as compared to the size of the armed forces, has constantly been growing since the 1960s (Haltiner, 1988). In 2015, military professionals of all categories made up 2.0% of all human resources. One reason for the relative increase is the cut-back from more than 700 000 to now less than 200 000 men, due to post-Cold War reforms (Szvircsev Tresch, 2011). These massive reductions were mostly accomplished by reducing duty length; the number of recruits remained comparatively stable. Military professionals are mostly assigned to basic training; thus, the share increased even without additional staff. Moreover, the growth of technology made instruction, command, and control more labor-intensive, further increasing the need for military professionals.

To perform their assignment, both career officers and career NCOs receive profound training from internal institutions. The *Military Academy at ETH Zurich* (MILAC) is the training facility for future career officers. Training depends on educational background. Candidates with a higher secondary school diploma (Matur) visit the 3.5-year Bachelor Course offered in conjunction with ETH and graduate with a *Bachelor of Arts in Public Policy*. Candidates with previous academic education (at least a bachelor) visit the 1.5-year Diploma Course instead, and receive a *Diploma of Advanced Studies ETH in Military Sciences*.

Table 2.1: Categories of military personnel appearing in the present dissertation. Comments regarding working hours: 41.5 hours of specialized career officers and NCOs is set by the average working hours of federal employees (BPV, 2016, art. 64). 45 hours refers to an exception in regulatory law (V Mil Pers, 2016, art. 20, 1). The unlimited working hours (V Mil Pers, 2016, art. 19, 1) are partially compensated by the retirement age of 60 (62 for senior staff officers).

Occupational title	German terminology[a]	According to MG, art. 47	Education[b]	Working hours	Exemplary tasks
Senior staff officer	Höherer Stabsoffizier	professional officer	Master, MAS[c]	unlimited	Brigade Commander
Career officer	Berufsoffizier	professional officer	1.5 – 3.5 years MILAC[d]	unlimited	Company Instructor
Career NCO	Berufsunteroffizier	professional NCO	2 years NCOS[e]	unlimited	Weapons Instructor
Specialized career officer	Fachberufsoffizier	professional officer	function-specific[f]	41.5 hours/week	special forces
Specialized career NCO	Fachberufsunteroffizier	professional NCO	function-specific[f]	41.5 hours/week	military security
Contractual officer	Zeitoffizier	contracted officer	few weeks	45.0 hours/week	service staff
Contractual NCO	Zeitunteroffizier	contracted NCO	few weeks	45.0 hours/week	maintenance
Career air force pilot	Berufsmilitärpilot	professional officer	function-specific[g]	unlimited	F/A-18, Cougar
Career board operator	Berufsbordoperateur	professional officer	function-specific[h]	unlimited	FLIR operator, surveyor

[a] French and Italian versions of the occupational titles can be found in table 6.1.

[b] Any employment at the Swiss Armed Forces requires at least a vocational education, or high school degree, and the military basic education according to the respective rank, that is reserve officer school for all professional officers, and NCO school for all professional NCOs.

[c] Senior staff officers, corresponding to generals in the international context, are nominated by the Federal Council. Thereby, the Federal Council is not bound by educational stipulations. However, a master of advanced studies (MAS) is intended for prospective senior staff officers without university master or equivalent educational degree.

[d] Programs for prospective career officers at military academy (MILAC) depend on their educational background. Those with general qualification for university entrance (Matura) complete the 3.5 year Bachelor course at MILAC and receive a *Bachelor of Arts in Public Policy* from ETH Zurich. Those already holding a university degree complete a 1.5 year Diploma course and receive a *Diploma of Advanced Studies ETH in military sciences*. Those with vocational education complete a 20 month Military School. Irrespective of the program, all career officers receive a diploma from the MILAC.

[e] Since 2016, Armed Forces Professional NCO School (NCOS) offers a short-tract program of 15 months for prospective career NCOs with advanced educational background, for instance a diploma of a university of applied sciences.

[f] For instance 12 months of police academy.

[g] In 2015, education of Career air force pilots includes a *Bachelor of Science in aviation* and the worldwide accepted *commercial pilot license CPL* («frozen» ATPL).

[h] Board operator receive specific training, according to their need.

Candidates with vocational education are formed in a military school of 20 months. In addition to these studies, all three curricula involve a high share of practical education. The *Professional NCO School of the Armed Forces* (NCOS) trains future career NCOs in stages of 2 years. For candidates with a higher vocational education, for instance a diploma from a university of applied sciences, a shorter stage of 15 months is offered instead.

To be accepted as a candidate, the future military professional must have earned a corresponding rank in the active reserve system previous to his professional engagement. Depending on the track chosen, this is 2LT, 1LT, or CPT for future career officers, and usually CSM for future career NCOs. This close relation between active reserve and military professionals persists beyond basic training; career officers and NCOs remain incorporated in an active reserve unit or staff, performing their duty «under the same conditions as other members of the armed forces» (DR 04, 2015, art. 27, 5; my translation). To illustrate, I refer to my personal experience in 2011. Professionally assigned to an Infantry recruit school, I was the commander of a recruit reconnaissance company, but for 4 weeks of the year, I had to move in with my active reserve battalion, where I was company commander of the 17th Infantry Battalion's Weapons Company. This embeddedness is not only crucial to the (bidirectional) exchange between active reserve units and recruit schools, but to promotions which are only done in the active reserve units, with a decisive impact on the professional career of the officer. In contrast, career NCOs receive their rank and promotion from the professional function.

Working hour regulations are idiosyncratic to career officers, career NCOs, and flying personnel. Given the intricate nature of working hours, I refrain from integrating them as an outcome variable in the study. However, I provide the descriptive statistics at this point to illustrate the situation of military professionals, which I think is relevant to the understanding of psychological contracts, organizational commitment, and work orientations in chapters 4 to 6. As table 2.1 summarizes, only flying personnel, career officers including senior staff officers, and career NCOs have unlimited working hours (V Mil Pers, 2016, art. 19, 1). Working hours of contracted personnel is regulated to 45 hours on average (V Mil Pers, 2016, art. 20, 1), with strong variation throughout the year. Finally, specialist officers and specialist NCOs work according to the regulations of the Federal Administration (V Mil Pers, 2016, art. 19, 7), which usually comprises 41.5 hours per week on average. Figure 2.1 shows average self-reported working hours for military professionals, according to their wage bracket (*LK*). The questionnaire item regarding working hours can be found in appendix A.4.1.

Yet another characteristic is the variation in job titles, according to the language of military professionals. This is subject to hypothesis 6.8, where I provide evidence that job titles affect the work orientation of military professionals. There, table 6.1 provides all occupational titles of military professionals in German, French, Italian, and English.

2.1.2.2 Civilian employees. The engagement of civilian employees is not untypical for armed forces; rather, the increase of civilians in the workforce is a constant in the development of armed forces. In the 19th century, typically less then 1 in 10 members of the armed forces accomplished non-military tasks;

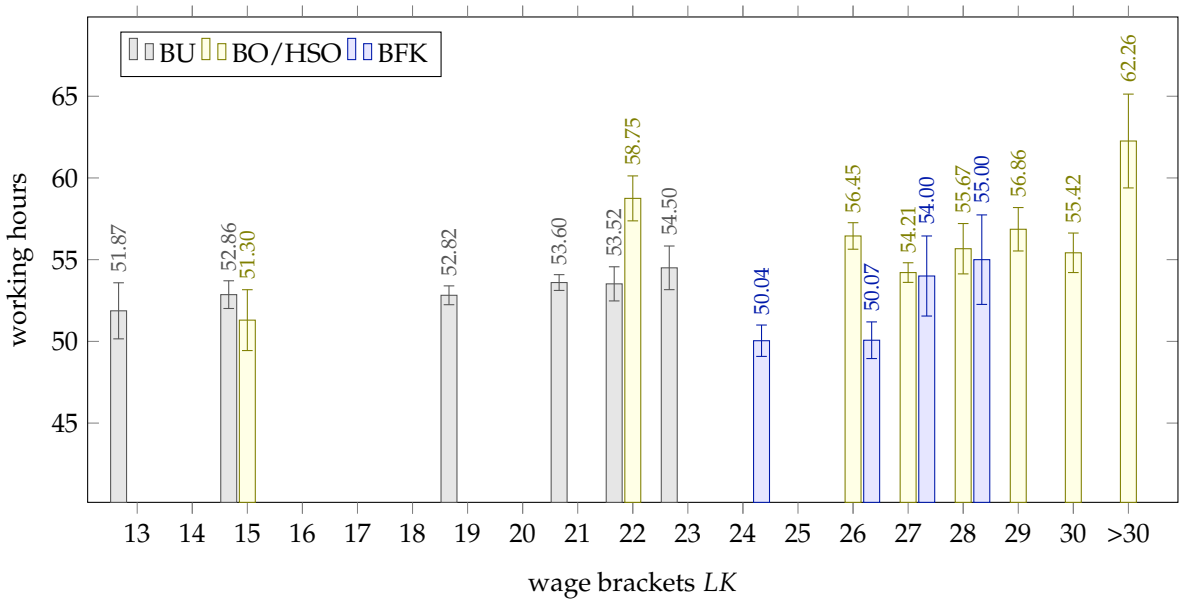

Figure 2.1: Self reported working hours for career NCOs (BU), career officers including senior staff officers (BO/HSO), and flying personnel (BFK), according to wage brackets *LK*. Categories with less than 5 individuals have been omitted.

the number has increased steadily since then (Janowitz, 1961; Moskos, Williams, & Segal, 2000; Elbe & Richter, 2012). For instance, the U. S. Army, in 2011, included 23% civilian employees (Wait, 2012, p. 3). Using the example of the German *Bundeswehr* in 2010, 80 000 civil servants work alongside 245 000 soldiers (Elbe & Richter, 2012).

In Switzerland, the situation is quite different. Due to the militia system, the Swiss Armed Forces profit from civil knowledge and engage active reservists, where possible, in functions closely aligned with their civil vocation. To give two examples, company cooks are recruited from those adolescents who have done a cook's apprenticeship *before* military service, and car mechanics form the pool of tank mechanics. This affinity between civilian and military expertise exists for about two thirds of all reservists (Haltiner & Hirt, 2000); thus the number of civil servants can be kept low as long as the militia system allows for use of civil potential (ibid.).

Consequently, civilian employees only make up 3.6% of troop size. Yet due to the low number of military professionals, as explained in the previous subsection, the share of civilians among employees is with 64.6% exceptionally high compared to other armed forces.

Often, civilian employees are incorporated as reservists in the Swiss Armed Forces. In the five Grand Units investigated in the present study, the amount of senior active reservists that are also part of the civilian management of the Armed Forces varies between 2.1 and 2.8% (see table 3.2). In addition, civilian employees are incorporated that are not in a management position in their civilian function, or in the active reserve unit, or in both. Table 3.15 reveals that in the present sample, where only

Box 2.2: Survey participants reflecting the status of civilian employees

«Zivile Mitarbeiter sollten von zivilen Kadern geführt werden.» [no. 644]

«Für zivil Angestellte in der Armee fehlt überwiegend ein Weiterentwicklungsperspektive. Der einzige Weg sich weiter zu entwickeln ist der, innerhalb der Linie aufzusteigen.» [no. 1452]

«Achtung, die heutigen zivilen Mitarbeiter sind keine trivialen Maschinen.» [no. 2207]

«Ich arbeite seit dem Januar 2015 bei der LBA und war vorher 20 Jahre in der Privatwirtschaft tätig. Schätze den Arbeitgeber, sowie die Entwicklungsmöglichkeiten beim VBS sehr.» [no. 3772]

management levels of civilian employees are accounted for, 38% of civilians currently have an active reserve incorporation, 48% are former active reservists, and 14% were never incorporated.

Objective differences between civilian employees and military professionals exist in terms of contracts, appearance (uniform), and recruiting systems. In addition, cultural differences are a frequent subject of discussion among researchers and practitioners (e. g., Annen, 2015). Notably, civilian and military subcultures are less of a subject in the German-speaking debate (see Vom Hagen & Tomforde, 2012, p. 290). In the United States, considerably more has been written about the civilian workforce in military organizations (Koslowski, Broedling, & Duckrow, 1982), often in terms of «*Ideological* (dis)similarities between civilians and military men» (Moskos, 1973, p. 267, his emphasis). I refer to this issue in terms of different work orientations in chapter 6.2.5; there, box 6.6 provides quotations of study participants addressing this cultural gap (notably, only civilian employees referred to this issue in the free comment box).

Here, I refrain from a potentially normative discussion. Instead, I provide figure 2.2, presenting employee levels across wage brackets, where an average of 41.5h/week usually corresponds to 100% (BPV, 2016, art. 64). A comparison of figure 2.2 with figure 2.1 gives an impression of organizational challenges arising when civilian employees and military professionals work in the same organization, or even in the same team. However, three relativizations seem appropriate. First, employment levels are system data, but working hours are self-reported and thus susceptible to bias. Second, civilian employees may work beyond the regulated working hours; correspondingly, they reported on average an additional 3h/week, compared to their employment level. Third, civilian employees in wage brackets 24 – 29 may opt for trust-based working hours, in agreement with their supervisor; for wage brackets 30 and above, trust-based working hours are compulsory. Thus, working hours of civilian employees become increasingly deregulated with higher wage brackets. Nevertheless, it seems plausible that some organizational and cultural frictions may arise, due merely to different availability. In addition, social comparison and perceived fairness are mechanisms between military professionals and civilian employees relevant for organizational outcomes (Goldenberg, Andres, & Resteigne, 2016); yet this is beyond the scope of the present study.

2.1.2.3 Senior active reservists. The special nature of the Swiss militia system has attracted some interest in the international research community of Armed Forces and Society. Practitioners have been

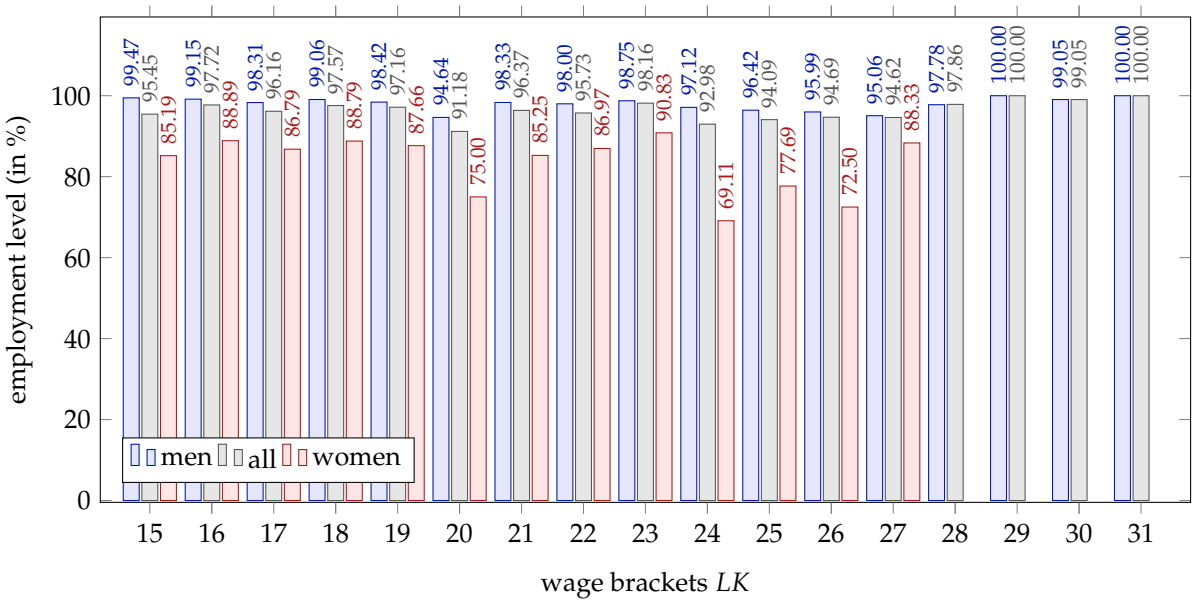

Figure 2.2: Employment levels of civilian employees in the Swiss Armed Forces, according to gender and wage brackets LK. Categories with less than 5 individuals omitted.

impressed with the Swiss militia system, as the «Swiss Report» by GEN Lewis W. Walt and MG George S. Patton suggests (Walt & Patton, 1983). International comparisons refer to Switzerland as an exceptional case, due to its militia system (Werkner, 2006, 2012; Haltiner, 1988; Haltiner & Hirt, 2000). Here I present six facts relevant for the upcoming chapters: basic training, refresher courses, promotion courses, career opportunities, voluntariness, and economic constraints. For a detailed and comparative description of the militia system of the Swiss Armed Forces, I refer to Szvircsev Tresch (2005).

With respect to availability, senior active reservists are on duty only during basic training in the *recruit school*, lasting 18 to 25 weeks depending on the branch, and during follow-up courses to prepare for promotions. In international comparison, such cadet schools are comparatively short, for example 4 weeks for a future infantry NCO, and an additional 15 weeks for future infantry officers. Additional promotion service includes an assignment for a full period in a recruit school, where the future officer or NCO carries out his future function.

After completion of the training as private, NCO, SNCO, or officer, reservists are incorporated into units where they serve 3 to 4 weeks per year in *refresher courses*, according to rank and function, and usually within the framework of a battalion. The refresher courses ensure the unit is *fit for mission*. In addition, these battalions carry out occasional missions, such as protective measures at international conferences (e. g., the 29th G8 summit in Evian, France, close to the Swiss border; or the annual World Economic Forum WEF in Davos, Switzerland) or disaster relief (e. g., flooding and mudslides).

Further training, to advance in ranks, such as becoming an officer in a battalion staff, includes 2 to 8 weeks of courses. In contrast, training to become company commander is more intense and also involves promotion service as company commander in a recruit school. Overall, the number of duty

days is limited according to ranks. For instance, staff officers are restricted to serve no more than 75 days in two years (MDV, 2014, Art. 9a; further education and cases of emergency excluded).

In general, all ranks are open to senior active reservists. This includes the highly challenging and prestigious general staff positions as well as company, battalion, and brigade commanders. However, the share of senior active reservists decreases in the higher ranks. Among company commanders (CPT), only 3.7% are career officers, whereas fully 40% of all battalion commanders (LTC) are career officers. Brigade commanders (BG) are mostly career officers. At the time of the survey (2015), only 3 active reserve officers were engaged as senior staff officers.

While military professionals get their full pay by the Swiss Armed Forces, active reservists continuously get their pay-check from their civilian employer. Therefore, the employer gets up to 80% of the usual salary, which is compensated by the federal «Fund for Loss of Earned Income» (Federal Social Insurance Office, 2015). The employer is obliged to transfer this compensation and may voluntarily raise the salary to the regular level before service. The compensation is limited according to the number of children a reservist has and is lower in basic training (EOG, 2016, art. 16). The maximum compensation is limited to 245 CHF/day, which corresponds to a full salary (100%) of 9 187 CHF/month, about 9 350 USD in 2016. Consequently, a certain number of reservists suffer a loss in income, if their employer does not make up the difference (according to table 3.14, 21.1% of senior active reservists earn more than 10 000 CHF/month).

In light of such income losses, the service of senior active reservists has an undeniable character of voluntariness. Yet opportunity costs may also occur for lower incomes. Further, privates, NCOs, and even officers may be compelled to hold any rank and function (MG, 2016, art. 15). In practice, this is unlikely to occur in the higher ranks; however, among NCOs, and at times for SNCOs and officers, some are promoted against their will. Von Gunten (2013) reports that for the Air Defense Training Unit, of all officers and NCOs recruited from the ranks in 2011 and 2012, 70% volunteered, 21% were «convinced», and 9% were coerced into promotions. Notably, volunteers do not perform better, as qualification records suggest (ibid.).

Table 2.2 provides the ranks of the Swiss Armed Forces in three languages, with the official translation. To allow for comparison with other armed forces, NATO equivalence codes are added. This comparison is not official, because Swiss Armed Forces do not belong to NATO. In particular, terminologies and functions among SNCOs may vary quite markedly.

2.1.3 Armed Forces and Society in Switzerland

Although the militia model of the Swiss Armed Forces is of a truly idiosyncratic nature, particularly in comparison to armed forces abroad, it is completely normal within the country. In Switzerland, public affairs that are fully professionalized elsewhere, such as civil services in charge of schools or churches, local authorities, and even cantonal (i. e., state) and national legislatures are performed by volunteers in addition to their regular occupation (Ketterer, Güntert, Oostlander, & Wehner, 2015), a growing share of professional politicians at federal level notwithstanding (Wiesli, 2003).

Table 2.2: Comparison of military ranks in German, French, Italian, and English (Insignia of the Swiss Armed Forces, 2008, subsection 7.1). NATO codes are for illustrative purposes only; Swiss Armed Forces are not part of NATO and therefore, the equivalence is not official.

English (translation, not equivalence)	Abbreviation	German	French	Italian	NATO code
Enlisted	-	*Mannschaft*	*Troupe*	*Truppa*	
private E-1	PV1	Soldat	Soldat	Soldato	OR-1
private E-2	PV2	Gefreiter	Appointé	Appuntato	OR-2
private first class	PFC	Obergefreiter	Appointé-chef	Appuntato capo	OR-3
Non-commissioned officers	*NCO*	*Unteroffiziere*	*Sous-officiers*	*Sottufficiali*	
Corporal	CPL	Korporal	Caporal	Corporale	OR-4
Sergeant	SGT	Wachtmeister	Sergeant	Sergente	OR-5
Sergeant First Class[a]	SFC	Oberwachtmeister	Sergeant chef	Sergente capo	OR-5
Senior non-commissioned officers	*SNCO*	*Höhere Unteroffiziere*	*Sous-officiers supérieurs*	*Sottufficiali superiori*	
Sergeant Major	SGM	Feldweibel	Sergeant-major	Sergente maggiore	OR-6
Quartermaster Sergeant	QMS	Fourier	Fourier	Furiere	OR-7
Chief Sergeant Major[c]	CSM	Hauptfeldweibel[b]	Sergent-major chef	Sergente maggiore capo	OR-7
Warrant Officer	WO	Adjutant-Unteroffizier	Adjudant sous-officier	Aiutante maggiore	OR-8
Staff Warrant Officer	SWO	Stabsadjutant	Adjudant d'état-major	Aiutante di stato maggiore	OR-9
Master Warrant Officer	MWO	Hauptadjutant	Adjudant-major	Aiutante maggiore	OR-9
Chief Warrant Officer	CWO	Chefadjutant	Adjudant-chef	Aiutante capo	OR-9
Officers	OF	*Offiziere*	*Officiers*	*Ufficiali*	
Second Lieutenant	2LT	Leutnant	Lieutenant	Tenente	OF-1
First Lieutenant[d]	1LT	Oberleutnant	Premier-lieutenant	Primo tenente	OF-1
Captain[d,e,f]	CPT	Hauptmann	Capitaine	Capitano	OF-2
Major[d,e]	MAJ	Major	Major	Maggiore	OF-3
Lieutenant Colonel[d,e]	LTC	Oberstleutnant	Lieutenant-colonel	Tenente colonnello	OF-4
Colonel[d,e]	COL	Oberst	Colonel	Colonnello	OF-5
Brigadier General	BG	Brigadier	Brigadier	Brigadiere	OF-6
Major General	MG	Divisionär	Divisionnaire	Divisionario	OF-7
Lieutenant General	LTG	Korpskommandant	Commandant de Corps	Comandante di corpo	OF-8
General[g]	GEN	General	Général	Generale	OF-9

[a] Considered a senior NCO in the U. S. Armed Forces.
[b] Holds a function comparable to the first sergeant (1SG) in the U. S. Armed Forces.
[c] Usually a senior enlisted advisor at battalion level in U. S. Army. In the Swiss Armed Forces, such a function is rather done by the rank officially translated as Warrant Officer.
[d] May be appointed as specialist officer. In such cases, the rank comes second and is put in parentheses, e. g., *Fachof (Maj) / of spéc (Maj) / uff spec (Magg)*.
[e] May be affiliated to the general staff. In such cases, the rank is appended, e. g., *Maj i Gst / Maj EMG / Magg SMG*. Sometimes, the english equivalent *MAJ GS* is seen.
[f] May be appointed as chaplain. In such cases, the rank is appended, forming *Hptm Asg / cap aum / cap capp*.
[g] Rank is reserved to the Supreme Commander of the Armed Forces, elected by the Federal Assembly in war time only (BV, 2016, art. 168).

Box 2.3: Survey participants reflecting the senior active reservists

«Die militärische Milizkaderlaufbahn stellt in der Privatwirtschaft in Bezug auf das lösungsorientierte Verhalten einen grossen Nutzen dar. Man lernt unter Druck und mit wenig Schlaf zu entscheiden und lernt aus Fehlentscheidungen. Man lernt sich zu organisieren und effizienter zu werden, da sonst der Schlaf darunter leidet.» [no. 119]

«Come ufficiali di milizia non abbiamo nessuna protezione lavorativa da parte della confederazione.» [no. 1126]

«Ich schätze die Armee sehr und mir macht mein Dienst auch meist Spass und ich erachte ihn als sinnvoll. Trotzdem muss ich als selbständig Erwerbender sagen, dass sich die WK beruflich sehr negativ auswirken.» [no. 1469]

«Ich hätte ohne meine Offizierslaufbahn nicht so früh das Rüstzeug gehabt um meine berufliche Laufbahn so erfolgreich zu gestalten wie sie heute ist.» [no. 3388]

As a consequence, the Swiss Armed Forces are strongly embedded in Swiss society. Nevertheless, since the Cold War ended, the Swiss Armed Forces has become «an institution of secondary importance» (Haltiner & Hirt, 2000, p. 215). Yet the relations between the economy, university, and armed forces persist (Staffelbach, 1994; Beck & Staffelbach, 2008), and the value of social capital acquired in the Swiss Armed Forces has been shown to positively influence wages in the private sector (Jann, 2003). In addition, Stadelmann, Portmann, and Eichenberger (2015) have recently shown that federal parliamentarians who are or were active reserve officers significantly influence legislative debates in a pro-military way.

2.2 The Academic Field of Armed Forces and Society

2.2.1 Development of the field

Armed Forces and Society embraces a wide range of social studies – see the introductory remarks for chapter 2. Collmer (2010) names three groups of studies representing key concepts of the field: First, studies concerning military socialization, soldierly self-concepts, and professional concepts. Second, military organization and the culture within armed forces. Third, civil-military relations (p. 314). This triple perspective, including micro-, meso-, and macro-levels is only one dimension of the multifacetedness of Armed Forces and Society studies. Further, the interdisciplinary character is crucial (Leonhard & Werkner, 2012). The present dissertation focusses on the micro-level but includes interdisciplinary aspects, which becomes apparent in the issues I emphasize in the next three subsections. The *professional debate* is entangled with the corresponding debate in the sociology of professions (Pfadenhauer & Sander, 2010). The *I/O model* is originary military, but the inherent value shift was suggested for societies in general (e. g., Inglehart, 1997). *Monopsony* is a classic concept from economics, often considered to be rather abstract (Manning, 2003), however it becomes practical in the setting of armed forces. These three issues are treated subsequently, providing a framework for discussions in chapters 5 and 6.

2.2.2 The professional debate

The *sociology of professions* is yet another specialized field of sociology, beyond industrial, work, and occupational sociology (Pfadenhauer & Sander, 2010). Traditionally, the sociology of professions investigated the prototypical professions as social groups, namely lawyers, physicians, and priests (e. g., Flexner, 1915/2001; Carr-Saunders & Wilson, 1933/1964; Jackson, 1970). However, researchers in military sociology (e. g., Huntington, 1957; Janowitz, 1961) and from the sociology of professions agree that the occupation of military officers is a «well-established profession», as well (Barber 1963, p. 674; Wilensky, 1964).

Although Vagts (1937/1959) mentioned the professional character of the military several times in «A History of Militarism», Lasswell (1941) was probably the first to explicitly write about the distinctiveness of professional soldiers. In doing so, he coined the term of «specialists on violence» (p. 458). With their epochal works, Huntington (1957) set the preconditions, and Janowitz (1961) founded the field of Armed Forces and Society. The professional character of the military was central to both Huntington and Janowitz, and also to Moskos (1977a), who wrote in this tradition (Schössler, 1980, p. 165).

The debate has been most prevalent in Anglo-Saxon countries, due to different legal standards (Leonhard & Biehl, 2012). But it also covered Europe (e. g., Caforio, 1994a) and is ongoing (Leonhard & Biehl, 2012; Von Bredow, 2006), partially turning to address the de-professionalization of the military (Downes, 1985; Ovens, 1986; P. Klein, 2006; Von Bredow, 2006) since the final years of the cold war.

The debate about the professional nature of military work is of more than theoretical interest. It has been suggested that professionalism helps overcome the «moral incompatibility» (Vogt, 1986, pp. 52–58) or the «moral segmentation» (Räder & Wakenhut, 1986) of the military with regard to the *civil* social system. At the same time, professional standards help resisting when organizations exert pressure to execute unethical standards (Shafer, 2002). In this sense, professionalism may act as a guarantee in ethically critical situations.

Regarding the characteristics of a profession, I refer to chapter 6.3.1. There, I develop an item to measure the *Profession* type as a particular work orientation (Moskos, 1977a; Wilensky, 1964). The contents of the Profession orientation are listed in table 6.3 in the respective chapter. Based on this measurement, chapter 6.4 identifies how a Profession orientation affects individual and organizational outcomes.

2.2.3 The I/O model

Related to the question of the professional nature of the military, scholars have argued whether this professionalism, after its emergence in the 19th century (Huntington, 1957, pp. 30–58), was jeopardized by technological and societal influences. Both Janowitz (1961) and Moskos (1977a) described this development, although with conceptual differences (Sørensen, 1994). To Janowitz, the process of civilianization was an irreversible development, but not a cause for concern; for Moskos, the process was a danger to the organization, and yet he did not suggest any concrete countermeasures (ibid.).

However, it was Moskos' formulation of a shift from an *Institution* to an *Occupation* that widely influenced the debate about changes in armed forces. His notion became known under the label of the *I/O model* (Leonhard & Biehl, 2012). In Moskos' (1977b) terms, an institutional model of armed forces is «legitimated by norms and values» (p. 42), whereas an occupational model is «legitimated in terms of the marketplace» (p. 43), that is following inherently civilian and thus non-military values. According to these definitions, Moskos' *ceterum censeo* is that the draft is essentially institutional, but the AVF is basically occupational (Moskos, 1977b; Leonhard & Biehl, 2012). The model has been applied to Switzerland, with the finding that «the normative basis of the militia model is (…) essentially institutional» (Haltiner, 1988, p. 259).

The normative view is inherent to the I/O model. In the very same year of its publication, Janowitz (1977) criticized Moskos' model as «hav[ing] overtones of an ideological appeal to return to the ‹good old days›. But there is no return» (p. 54). Indeed, Moskos (1977a) added «therapeutical proposals» (p. 23) to his observations. Later, he made explicit that he understood his I/O model «as a warning, not a prediction» (Moskos & Wood, 1988b, p. 4). Yet the fundamental critique is that Moskos never provided evidence for his dissertation of the changing military; the only driver he mentioned was the abolition of the draft (Leonhard & Biehl, 2012).

The I/O model is a multi-level concept (Collmer, 2010). On the one hand, the suggested shift from the institutional to the occupational model is induced by societal changes and drives the armed forces as a whole. On the other hand, this change affects the professional or occupational identity of soldiers (Moskos, 1977a).

More recent concepts exist describing changes in the armed forces. To mention two examples, Moskos et al. (2000) integrated the critique he received on the I/O model into the concept of the *postmodern development* of armed forces, a concept that has gained some attention recently (Collmer, 2010). Starting from a subjective point of view, Haltiner and Kümmel (2008) suggest the *hybrid soldier*, reflecting societal shifts (p. 47) and new forms of armed forces (multifunctional, international; p. 48).

These recent concepts notwithstanding, I rely on the I/O model as a framework of Armed Forces and Society, for two reasons. First, the normative dimension of the I/O model best reflects the discourse among practitioners; Moskos (1977a) bemoaned «the decline of the calling, the limits of professionalism, and the ascendancy of the occupational model» (p. 4). According to my personal experience, this parallels exactly the current debate within the Swiss Armed Forces (see also box 6.3). Congruent with this, Cotton (1988) has posited the normative dimension of the I/O model as a reason for the widespread interest in it. Second, Moskos (1977a) provides a typology of work orientations that builds on the I/O thesis (Moskos, 1977b), closely related to Wrzesniewski et al.'s (1997) triad of work orientations. This typology is the core of proposition 6.1, the central proposition linking work orientations from chapter 6 to the psychological contract, the focus of chapter 4. In these circumstances, the I/O model is more suitable as a framework for chapter 6, where military sociology, sociology of professions, and Organizational Behavior are integrated.

2.2.4 Monopsony in armed forces

Monopsony is the situation where a market involves only one buyer; in this sense, it is the opposite situation to a monopoly, where only one seller is available (Manning, 2003). The military often serves as as textbook example of monopsony (ibid.).

The discussion about monopsony in the armed forces emerged with the introduction of the AVF in the United States. Borcherding (1971) was the first to show that the wage setting power of a monopsonist buyer of military labor allows for a welfare loss. His theoretical model notwithstanding, other buyers of labor exist in parallel to the armed forces; thus, more precisely, the situation corresponds to a «dominant firm monopsony» (Quester & Nakada, 1983, p. 296). Yet the effect is comparable in so far as armed forces face a labor supply curve that is not infinitely elastic, which corresponds to the gradual interpretation of monopsony Manning suggests. There is a certain risk that in a monopsonistic situation, «the military will enlist too few personnel (and pay them too little)» (Warner, 1995, p. 380); yet empirical studies suggest that monopsony does not play a major role in determining the size of the U. S. Armed Forces (ibid.).

The assumptions of monopsony in armed forces rely on an AVF; however, the Swiss Armed Forces are in some sense the opposite of an AVF (Szvircsev Tresch, 2005, p. 22). Yet the fact that Switzerland has never had enough military professionals since at least 1875 (Olsansky & Moccand, 2015, p. 68) lends some support to the suggestion that a monopsonist situation applies at least for this part of Swiss Armed Forces.

Beyond economics, the notion of monopsony has been acknowledged by military sociologists. Wachtler (1986) argues that that the monopsony of the state with regard to *military* manpower characterizes the military profession in many ways, namely in terms of recruiting, idiosyncratic education, and the legal situation (p. 218). Swiss legislation describes such occupations in the economically incorrect terminology as *monopoly occupations* («Monopolberufe»), and accordingly raises protective measures in labor law for such positions, namely prolonged periods of notice (BPV, 2016, art. 30a). Thus Swiss federal law refers to the situation as a challenge to the employee.

In the present dissertation, I refer to *monopsony* from this subjective viewpoint. The possible effect of the particular labor market on the staffing situation notwithstanding, I focus on the aspects relevant to the individuals who are already employed. This is compatible with the more recent reading of monopsony, where labor market frictions are one of two baseline assumptions (Manning, 2003).

I suggest economic reasoning can be applied to the situation of psychological contracts, the main construct of the present study. Thompson and Bunderson (2003) have suggested three different psychological contracts, characterized by the *currency* that is exchanged in each contract. In the transactional contract, economic currency is exchanged. This corresponds to the canonical understanding of monopsony, but only from an individual, cognitive perspective. I suggest military professionals may remain in the armed forces despite the fact that their transactional contract is underfulfilled (see definition 4.2 for the terminology), if Swiss Armed Forces is the only buyer for the economic money they offer, that is military labor.

Thompson and Bunderson (2003) also suggest that socio-emotional and ideological currency is subject to relational and ideational contracts, respectively. Accordingly, I argue that *socio-emotional monopsony* may occur when the Swiss Armed Forces represents the only organization that may buy the socio-emotional currency (e. g., in terms of identification) offered by the employee. Similarly, *ideological monopsony* would occur if only the Swiss Armed Forces allows an employee to serve the higher cause he is aiming at. In other words, some employees wishing to contribute may see the Swiss Armed Forces as the only buyer of their ideological currency, with comparable consequences for their occupational mobility. To emphasize the individual aspect of such an extended understanding, I refer to *cognitive monopsony* to describe the sum of the three suggested forms of monopsony. The findings regarding hypothesis 5.5, and the measurement suggested in appendix B.2 may also be read in the sense of cognitive monopsony.

Chapter 3

Methods

Any homogeneous group . . .avoids extraneous variance
that can hinder the researcher's ability to isolate effects. . . .
If undergraduate students, military personnel, or secondary school teachers
are among the people covered by the theory,
then any one of these is an appropriate sample on which to test the theory.

Do Samples Really Matter That Much? (Highhouse & Gillespie, 2009)

This chapter gives a methodological overview relevant to the study as a whole. Chapter 3.1 introduces the setting of the research. Chapter 3.2 presents details about the chosen population as a subset of the Swiss Armed Forces. Chapter 3.3 describes the questionnaire. Given the particular language setting within the Swiss Armed Forces, a special focus is set on the translation procedure in chapter 3.4. Chapter 3.5 presents the participating sample, including plausibility checks, data cleansing, and descriptive statistics of the final sample. Chapter 3.6 presents a preview of the measurement of the core constructs in the main chapters 4 to 6. It further includes details about the outcome variables *work satisfaction*, *turnover intention*, and *work effort*, which are used in all of these three chapters, and introduces control variables. Chapter 3.7 explains imputation principles followed by the main chapters, and chapter 3.8 defines settings common to all exploratory factor analyses used in chapters 4 and 5. Chapter 3 closes with a summary in 3.9, presenting research perspectives and practical implications based on the descriptives.

3.1 Setting

Data acquisition was mainly based on an online questionnaire, using EFS survey 10.7 software, provided by *Questback GmbH*, Gustav-Heinemann-Ufer 72a, 50968 Köln, Germany. The appropriate license was purchased by the Chair of Human Resource Management at the University of Zurich, Plattenstrasse 14, 8032 Zurich, Switzerland. The server platform for the software was provided by *Datagroup Bremen GmbH*, Linzer Straße 3+5, 28359 Bremen, Germany. The provider is certified by the German *Bundesamt für Sicherheit in der Informationstechnik*, according to the IT-security norm ISO-27001, under the certificate number BSI-IGZ-0195-2015.

In 2013 – 2014, researchers of the Chair of Human Resource Management at the University of Zurich, Switzerland, conducted a three-wave study based on the same software solution within the sample of military professionals of the Swiss Armed Forces, resulting in several publications (e. g., Morf, 2016). Although there was friendly support in either direction, no data was exchanged and no matching, comparison, or any other common treatment of data was performed. Thus, the research projects can be considered completely independent.

In addition to the questionnaire, personal data such as tenure, wage brackets, and mother tongue were provided by the Swiss Armed Forces's personnel data system for employees, and by the reservists personnel information system for senior active reservists. These data were matched with survey data. Data were then rendered pseudonymous and subsequently archived as a safety copy by myself, with the key for re-identification archived by the HR department of the Swiss Armed Forces. Apart from this safety copy for potential followup studies, all data were rendered anonymous before any further processing. Thus, solely anonymous data was processed for all analysis within the present study.

In the present project, I play a double role as both a researcher at the University of Zurich, Switzerland, and as a career officer, that is an employee of the Swiss Armed Forces. During the time of the study, I was working in the HR department of the Swiss Armed Forces. To account for this situation, a special

agreement was proposed by the legal service of the Swiss Armed Forces. The agreement stipulated measures concerning data security and mutual obligations with regard to data processing, in particular the collection, storage, use, revision, disclosure, archiving and destruction of data in accordance with Swiss Federal Law (FADP, 2014). The agreement was signed by the head HR of the Swiss Armed Forces, Mr. Daniel Gafner, as a representative of the Swiss Armed Forces, and by myself.

The Swiss Armed Forces' legal service and the Information Security and Facility Protection agency[5] approved the item catalogue with regard to conformity to Swiss Law, to ensure personal data protection. Aside from this approval, no influence was executed by the Swiss Armed Forces or any of its representatives, with regard to purpose, content, design, analysis, and reporting of the present research.

Beyond the measurements used for the present study, as presented in appendix A, the survey further includes measurements for follow up studies, in particular items concerning job embeddedness (Mitchell, Holtom, Lee, Sablynski, & Erez, 2001), and questions to quantify average work, commute, leisure, and sleep times of senior active reservists and incorporated employees of the Swiss Armed Forces currently serving. The possibility for further studies is granted by the previously mentioned agreement.

3.2 Population

Using a specific, military sample from a small European country may raise concerns of generalizability. This may be best countered by quoting Highhouse and Gillespie (2009, p. 253):

> If undergraduate students, military personnel, or secondary school teachers are among the people covered by the theory, then any one of these is an appropriate sample on which to test the theory.

Of course, context has to be taken into account, and seemingly counterintuitive findings are not only to be reported, but also explained (cf. Johns, 2006, p. 389). Indeed, generalizability must not be confused with representativeness (Berkowitz & Donnerstein, 1982). However, homogeneity of groups may even help to isolate effects and their boundary conditions (Highhouse & Gillespie, 2009). Hence the sample consists of three comparable subsamples, namely military professionals, civilian employees, and senior active reservists (see chapter 2.1.2). These subsamples clearly possess distinct boundary conditions, but also commonalities, that is, the common organization. To further enhance comparability between the three subsamples, the survey addresses strata of similar hierarchical levels within the organization.

Therefore I have used wage brackets LK (*Lohnklasse*) and ranks $RANK$ as distinctive characteristics. Employees of the Swiss Federal administration are paid according to wage brackets (BPV, 2016, art. 36). For senior active reservists, ranks were used as selection criterion instead. The base subsample for comparison are military professionals. Of these, only 10 individuals could be considered as non-seniors.

5 The Swiss Armed Forces's central agency for security. The German denomination is *Informations- und Objektsicherheit (IOS)*

After their exclusion, a population of $N_1 = 3\,342$ military professionals remained. Military professionals in the strict sense, that is career NCOs and officers, start at a wage bracket of 15.[6] Consequently, I chose this as a lower threshold for civilian employees. Due to the chosen threshold, specialized civilians without leading functions, such as IT-specialists or lawyers, are included, too. This subpopulation comprised $N_2 = 3\,689$ participants. Organizational email addresses were completely available and provided by the personnel system of the Swiss Armed Forces.

The third subpopulation was taken from the active reserve, based on 4 brigades and 1 territorial region. These *Grand Units* were chosen to cover all three major language groups, with the intention of oversampling the smallest, that is the Italian language group. Of the Grand Units, 2 were German speaking, 1 bilingual French/German, 1 bilingual German/Italian, 1 trilingual German/French/Italian. Only officers and SNCOs (see table 2.2) were invited to participate. In the Swiss Armed Forces's terminology, these two groups form the body of seniors (*höhere Kader*), comparable with the military professionals and the selected civilian employees. This preliminary subpopulation counts $\widehat{N}_3 = 3\,494$ officers and SNCOs. The descriptive statistics with respect to language groups can be found in table 3.1.

Table 3.1: Basic descriptive statistics of the five Grand Units within the senior active reservists subpopulation by $LANGUAGE$. D are German speakers, F are French speakers, I are Italian speakers.

Grand Unit	Total	D		F		I	
Br inf 2	698	247	(35.4%)	450	(64.5%)	1	(0.1%)
Inf Br 5	882	882	(100.0%)	0	(0.0%)	0	(0.0%)
Br fant mont 9	734	344	(46.9%)	85	(11.6%)	305	(41.6%)
Geb Inf Br 12	710	710	(100.0%)	0	(0.0%)	0	(0.0%)
Ter Reg 3	470	331	(70.4%)	0	(0.0%)	139	(29.6%)
Total ($\widehat{N}_3$)	3 494	2 514	(72.0%)	535	(15.3%)	445	(12.7%)

This subpopulation is preliminary due to the particular reserve system of the Swiss Armed Forces (see chapter 2.1.1). Civilian employees are sometimes, and military professionals almost always, incorporated in a reserve unit. Thus, I had to remove employees from the reserve population. The proportion of civilian employees incorporated as reserve NCO or reserve officer ranges from 2.1% to 2.8%, and military professionals accounts for 8.8% up to 14.7%, depending on the Grand Unit (see table 3.2).

Mailing lists were incomplete, since Grand Units do not usually send emails directly to reservists below company commanders. Therefore, higher ranks are overrepresented within the final subpopulation. The final size of the reserve subpopulation reachable by email, after exclusion of employees, was $N_3 = 2\,281$ senior active reservists, as described in table 3.3. Throughout this dissertation, the term *senior active reservists* refers to this subpopulation.

6 Most contracted and prospective military personnel, and some specialized military personnel is ranked in lower classes.

Table 3.2: Basic descriptive statistics of the five Grand Units within the senior active reservists subpopulation by status, namely military professionals, civilian employees, and senior active reservists not employed by the Swiss Armed Forces.

Grand Unit	Total	Professionals		Civilians		Reservists	
Br inf 2	698	88	(12.6%)	16	(2.3%)	594	(85.1%)
Inf Br 5	882	78	(8.8%)	25	(2.8%)	779	(88.3%)
Br fant mont 9	734	108	(14.7%)	18	(2.5%)	608	(82.8%)
Geb Inf Br 12	710	79	(11.1%)	15	(2.1%)	616	(86.8%)
Ter Reg 3	470	42	(8.9%)	10	(2.1%)	418	(88.9%)
Total ($\widehat{N_3}$)	3 494	395	(11.3%)	84	(2.4%)	3 015	(86.3%)

Table 3.3: Basic descriptive statistics of the five Grand Units within the senior active reservists subpopulation accessible by email by $LANGUAGE$. D are German speakers, F are French speakers, I are Italian speakers.

Grand Unit	Total	Coverage	D		F		I	
Br inf 2	473	85.0%[a]	178	(37.6%)[b]	295	(62.4%)[b]	0	(0.0%)[b]
Inf Br 5	660	88.6%	660	(100.0%)	0	(0.0%)	0	(0.0%)
Br fant mont 9	434	76.8%	207	(47.7%)	40	(9.2%)	187	(43.1%)
Geb Inf Br 12	390	67.5%	390	(100.0%)	0	(0.0%)	0	(0.0%)
Ter Reg 3	324	82.3%	236	(72.8%)	0	(0.0%)	88	(27.2%)
Total (N_3)	2 281	80.3%	1 671	(73.3%)	335	(14.7%)	275	(12.1%)

[a] Percentage of senior active reservists reachable by email within the respective Grand Unit.
[b] Percentage of senior active reservists of a given language within those reachable by email.

Four of the five Grand Units are (Mountain) Infantry Brigades, and Ter Reg 3 is part of the Land Forces, too. Thus the Air Force is not represented in the reservists sample. Despite other specialist branches represented in these Units, the Infantry is largely oversampled. Senior active reservists are thus not taken into account for hypothesis 6.6, addressing differences with regard to specialist branches.

Consequently, the overall population reachable by email included $\sum_i N_i = 9\,312$ members of the Swiss Armed Forces. Tables 3.12 to 3.16 in chapter 3.5.1 provide further details about all three subpopulations, including response rates.

3.3 Procedure

I developed two different versions of the questionnaire, each in German, French and Italian. Technically, this was done by implementing six languages. The *employee* version was sent to both military professionals and civilian employees. It kept most formulations of the original items of the different scales, with the usual adjustments, such as replacing «the organization» or «the employer» by «Swiss Armed Forces», or, where needed for clarity, by stating more precisely «Swiss Armed Forces, as your employer», for example. Besides, a few particular changes were made (c. f. chapter 3.6).

The *senior active reservists* version needed more adaptation, because a lot of items discuss a work environment. Expressions such as «I feel the Swiss Armed Forces is obligated to train me for my specific *job* duties» were changed into «…service duties», «It does not make a good impression to change jobs» was turned into «…to terminate an officer's career», or «…to terminate an NCO's career». In general, items were adapted according to the rank reported at the beginning of the survey, to increase the participants' identification with the items.

I restricted the survey length to 30 minutes, in accordance with HR professionals from the Swiss Armed Forces, and to avoid careless response behavior caused by boredom (Meade & Craig, 2012). This restriction posed some constraints on the choice of scales. Specifically, the number of items of the core construct *psychological contract* was reduced to 5 per factor, and to 3 or 4 for other constructs, such as *vocational* or *organizational commitment*. For *work orientations*, Wrzesniewski et al.'s (1997) categorization technique was used, with a single, but rather lengthy item per orientation (see chapter 6.2.2).

The survey took place from 17 November 2015 – 18 December 2015. Individualized links were used to match participants with system data from the Swiss Armed Forces. Such links further allowed participants to resume the survey after a break, and prohibited multiple participation. Participants were informed on the second page, right after the choice of language, that with their participation, they consented to store their personnel data on a foreign server in Germany. On the same page, they were informed that participation was voluntary, and that data were evaluated under strict anonymity.

An initial invitation was sent from the `unipark.de` server, indicating addresses from the University of Zurich as sender and reply-to address. Therefore, three addresses were created deliberately to cover the three language groups. German speakers received an invitation from `militaer-umfrage@`

business.uzh.ch. French speakers received an invitation from sondage-militaire@business.uzh.ch. Italian speakers received an invitation from sondaggio-militare@business.uzh.ch. Employee's language codes were available from organizational data. For reservists, I appointed languages manually, based on their incorporation and, in case of members from multilingual units, according to their residence.[7] To correct for misattributions, all participants could still choose their preferred language. However, the three reservist language options were hidden for employees and vice versa.

A letter of the Chief of the Armed Forces, Lieutenant General André Blattmann, was sent together with the link to the selected members of the Swiss Armed Forces to refer to the preceding study of the same chair, explaining the need of the study at hand, encouraging participation, and assuring strict confidentiality. Study participants were free to do the questionnaire during working hours in the case of employees, and at their own responsibility in the case of reserve officers.

Unfortunately, rumors about the authenticity of my email questionnaires came up during the first days of the survey. Probably due to phishing sensitization campaigns early in 2015, phishing suspicions were reported to the Information Security and Facility Protection agency. Therefore, a reminder was sent by internal communication, including the same links to the platform. Because of limitations to internal communication, the originally intended second reminder was omitted. However, reservists were not affected by these rumors, since they had not been addressed by the above-mentioned campaign. Thus, two reminders were sent to reservist participants, using university email addresses, as originally intended. The potential impact of the rumors on participation rates is discussed in chapter 3.5.1.

3.4 Translation

Most of the items in the literature are available in English only. Given that Switzerland is a country with three national languages, of which all three are used within the Swiss Armed Forces,[8] translation of the items was of particular importance. All translations were accomplished within a five-step procedure. Whereas validated translations in one of the languages existed, these translations were used instead, but kept within the translation procedure, to ensure convergence between different languages, sources, and variants (employees vs. reserve). Because coherence between the three Swiss languages was of greater importance than pairwise congruence with the original, French and Italian translations were done based on the German translations. However, a cross-check with the English originals was done in either case.

As a first step, items were translated from English to German by translation and back-translation. Translation into German was done by myself, back-translation was accomplished by a bilingual Swiss career officer with English mother tongue. Differences were discussed and changes were made wherever necessary. Validated German scales were used where available. In the case of items where the original was in German, a translation into English was done instead. In doing so, all items can be dealt with in

7 Residence data was used in the pre-phase of the survey, but eliminated later, to ensure anonymity.

8 For a study on the language use in a trilingual Swiss brigade, see (Kreis, Lüdi, & Altermatt, 2008).

English throughout the dissertation. Appendix A indicates the original source and language for every item.

In the second step, items were translated by a Swiss career NCO with French mother tongue who had worked within the HR department of the Armed Forces Staff. Back-translation was accomplished by a bilingual Swiss career officer with German mother tongue. I found accountable differences, so I discussed them with a Swiss active reserve officer of French mother tongue to integrate a third opinion. Any ambiguities were removed.

In the third step, items were translated by a Swiss active reserve officer with Italian mother tongue and excellent knowledge of German and French. Due to the proximity of the French and the Italian languages, back-translation was done into French instead of German, to closely align the Italian to the French translations. Differences were discussed by the Italian speaking active reserve officer, the French speaking active reserve officer and myself, each of us having mastery in a second and basic knowledge of the third language. Since all three of us have decent knowledge of English, too, we accomplished a cross-check with the English originals.

In the fourth step, the three of us adapted all items into the version for senior active reservists, for example replacing *work* by *service*, and so on.

The final step, a pretest with 45 active reserve officers, with equal shares in each language group, was carried out to ensure understanding in all three languages. Therefore, pre-testers were split so as to pretest either the professional or the senior active reservist version of the survey. Only small ambiguities were found and thus removed.

3.5 Sample Statistics

Given that the dissertation not only answers questions of scholarly interest, but may in addition be considered as a case study for the Swiss Armed Forces, a special effort has been made to judge representativeness of the participating sample for the population. This has been done by sample selection analysis.

3.5.1 Participation

From the total population of $N = 9\,312$ invitees, $N_c = 2\,739$ (29.4%) completed the survey, $N_p = 252$ (2.7%) filled it out partially (at least the controls and the core concept items, i. e. psychological contract items), $N_m = 748$ (8.0%) participated only marginally, that is by looking at the first page only or by stopping before completion of the core concept items. Finally, a total of $N_n = 5\,573$ invitees (59.8%) did not participate at all. For a sample selection analysis, the first two categories ($N_c + N_p = 2\,991$) were considered as «participants», yielding an overall response rate of 32.1%. The last two categories ($N_m + N_n$) were considered as nonparticipants, in total 68.9% of the population. The response rate may be considered acceptable for general research in Organizational Behavior, but is rather low in the

setting of the Swiss Armed Forces. This, however, can be explained by the procedural issues reported in chapter 3.3.

Organizational data available for the complete population allowed for participation bias testing. A Mann-Whitney U test was performed to assess differences with respect to the metric variable AGE. For differences with respect to the nominal variables $GENDER$, $LANGUAGE$, and $SUBSAMPLE$,[9] Pearson χ^2-tests were performed.

Participants did not significantly differ from nonparticipants in terms of AGE; the respective Median t test ($p = .070$), Mean t test ($p = .101$)[10] and Mann-Whitney U test ($p = .061$) for equal distributions were all nonsignificant at a $\alpha = .05$-level. Participants and nonparticipants from Br inf 2 were excluded for this analysis, because there, AGE was available for participants only. Figure 3.1 shows the age pyramid of participants and nonparticipants.

In contrast, participants differed significantly from nonparticipants in terms of $GENDER$ ($\chi^2(1) = 25.791, p < .001$), $LANGUAGE$ ($\chi^2(2) = 15.831, p < .001$) and $SUBSAMPLE$ ($\chi^2(2) = 46.826, p < .001$). The respective histograms can be found in figure 3.2. To get a more comprehensive picture of possible sample selection bias, a sample selection model is established (Greene, 2003). Given the availability of data for nonparticipants, it is best to use such models to deal with potential limitations to internal and external validity (Cuddeback, Wilson, Orme, & Combs-Orme, 2004). Therefore, a binary logit model was established to account for all 4 variables AGE, $GENDER$, $LANGUAGE$, and $SUBSAMPLE$ simultaneously.

Omitting reservists of the Br inf 2 would potentially have weakened the analysis, since they represent 88.1% of the French speaking reservists. Thus, unavailable AGE data was imputed by regressing military $RANK$ on AGE and imputing predictions for nonparticipants from Br inf 2. $RANK$ is a good proxy for AGE among reserve officers; the corresponding model using three predicting variables, namely $RANK$ and two rank-related dummy variables (NCO vs officers δ_{Officer}; General Staff officers δ_{Gst} vs others) explained 70.8% of variance in AGE ($R^2_{adj} = .708$).

Using imputed AGE data, the results of the binary logistic regression confirm that participation depends significantly on $LANGUAGE$, $GENDER$, and $SUBSAMPLE$, as indicated in table 3.4. AGE has now become a highly significant predictor of participation. Within the binary logistic model, 1 additional year of AGE raises participation probability by $1 - e^{0.013} \approx 1.3\%$. However, these numbers have to be interpreted very cautiously, as the overall predictive force of the model is very low. Nagelkerke's pseudo-$R^2 = .016$ (Backhaus, Erichson, Plinke, & Weiber, 2013, p. 270) indicates that as little as 1.6% of variance in participation is explained by the model. The sample selection bias is thus significant, but small.

To find plausible explanations for this sample selection bias, two more models are established, one for reserve officers and one for employees. Two reasons account for this procedure: some data are only available for one of these two groups, and the more specific evaluation eases interpretation. To start

9 $SUBSAMPLE$ refers to the distinction of military professionals, civilian employees and senior active reservists (chapter 3.6.1).

10 equal variances not assumed since Levene's test was significant at $p < .001$

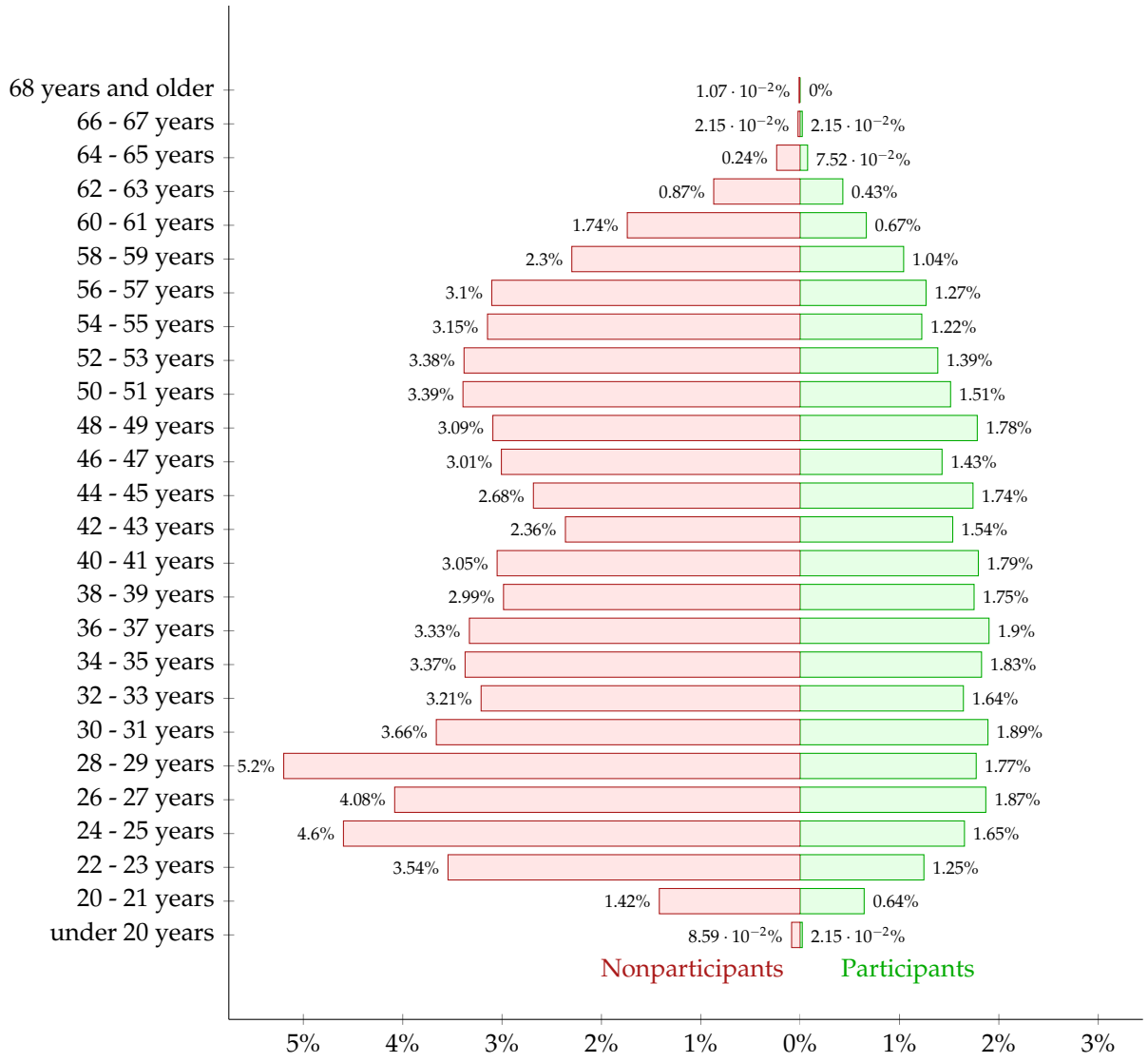

Figure 3.1: Age pyramid of participants, compared to nonparticipants. Members of Br inf 2 are not included, since AGE was available for participants only.

with, differences among subpopulations were investigated. After that, analysis for either group was performed.

In lieu of testing for the three known subpopulations, it is illustrative to further differentiate them into narrower categories. Therefore, the variable $CATEGORY$[11] is introduced. According to Pearson's χ^2 analysis, these categories form four subsets of categories, in which participation rates do not differ significantly at $\alpha = .05$ level. Details can be found in table 3.5.

In terms of $GENDER$ related sample selection bias, χ^2-tests within each subpopulation reveal that there is no $GENDER$-related sample selection bias for military professionals ($\chi^2(1) = 0.090$, $p = .764$) or for senior active reservists ($\chi^2(1) = 0.645$, $p = .422$), but in the case of civilian employees

11 See again chapter 3.6.1 for grouping variables.

Table 3.4: Binary logistic regression of participation on *AGE*, *GENDER*[a], *LANGUAGE* and *SUBSAMPLE*.

	B	S. E.	Wald	*df*	Sig.	exp *B*
LANGUAGE[b]			15.292	2	.000	
French	0.231	0.059	15.282	1	.000	1.260
Italian	0.036	0.091	0.159	1	.690	1.037
AGE	0.013	0.002	29.533	1	.000	1.013
Female	−0.325	0.101	10.399	1	.001	0.722
SUBSAMPLE[c]			61.939	2	.000	
Civilian employees	−0.172	0.058	8.642	1	.003	0.842
Senior active reservists	0.369	0.060	37.970	1	.000	1.447
(constant)	−1.304	0.099	174.816	1	.000	0.272

[a] Operationalized as dummy «female» with a value of 1 if female, and 0 if male.
[b] Base category: German.
[c] Base category: Military professionals.

Table 3.5: Participation rates depend significantly on subpopulation and employee categories. Participation is highest in the *a*-subset, and lowest in the *d*-subset.

SUBSAMPLE →			**Military professionals**			**Active reserve**		**Civilians**	**Total**
CATEGORY →	BO/HSO[†]	BU	FBM	BFK	ZM	OF	SNCO	–[‡]	
No participation	467[a]	576[a]	521[d]	203[c,d]	521[d]	1 201[a]	221[a,b]	2611[b,c]	6 321
	59.0%	60.1%	77.4%	77.5%	79.2%	61.9%	65.0%	70.8%	67.9%
Participation	324[a]	382[a]	152[d]	59[c,d]	137[d]	740[a]	119[a,b]	1 078[b,c]	2 991
	41.0%	39.9%	22.6%	22.5%	20.8%	38.1%	35.0%	29.2%	32.1%
Total	791	958	673	262	658	1 941	340	3 689	9 312

[a,b,c,d] Each superscript letter denotes a subset of *CATEGORY* categories whose column proportions do not differ significantly from each other at the $\alpha = .05$ level.
[†] Abbreviations for categories are written out in table 3.15.
[‡] The three civilian employees' categorizes are summarized in one column, because incorporation data are accurate only for participants.

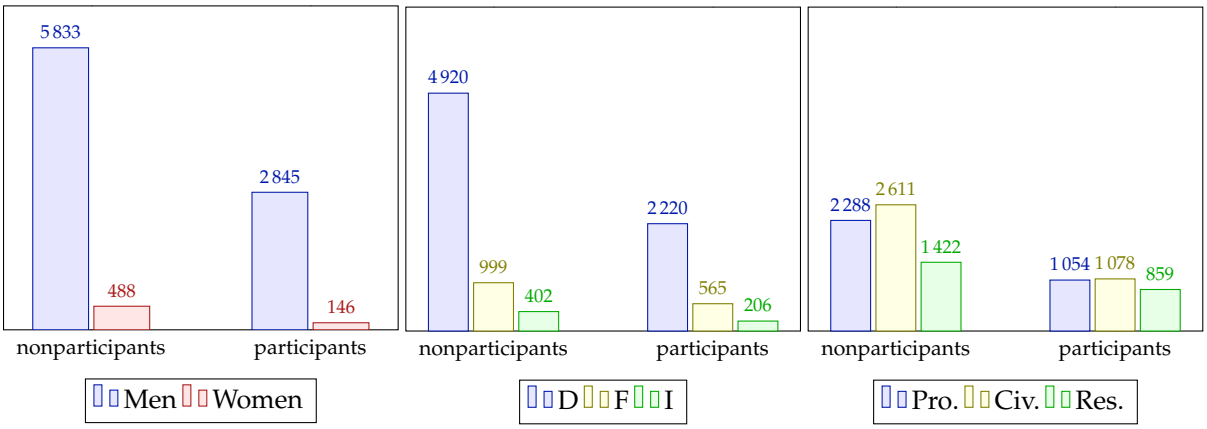

Figure 3.2: Histograms for participants and nonparticipants, with respect to *GENDER*, *LANGUAGE*, and *SUBSAMPLE*. D are German speakers, F are French speakers, I are Italian speakers.

($\chi^2(1) = 18.855$, $p < .001$). Findings are confirmed by Fisher's exact test (exact 2-sided significance .894, .457 and $9.49 \cdot 10^{-6}$, respectively). Among civilian personnel, women were significantly less likely to participate than men. Similarly, *LANGUAGE* related sample selection bias was nonexistent for military professionals $\chi^2(2) = 2.966$, $p = .227$) and for senior active reservists ($\chi^2(2) = .246$, $p = .884$), but persisted in the case of civilian personnel ($\chi^2(2) = 35.441$, $p < .001$).

Further investigation by binary logistic regression reveals that the apparent *GENDER*-related sample selection bias is spurious; when entering *EMPLEVEL* (employment level in %) as an additional predictive variable, *GENDER* becomes insignificant ($p = .126$), but *EMPLEVEL* becomes highly significant ($p < .001$). This reflects a difference in differences: Both among civilian employees and military professionals, men work significantly more often full time (95.9% of all men) than women (only 59.6%); however, the difference is considerably greater among civilian personnel (men 92.6% vs women 56.7%) than among military professionals (99.1% vs 83.6%). In line with this, the mean employment level is 97.97% for male and only 84.31% for civilian employees (mean difference significant at $p < .001$), but 99.73% for male and 92.69% for female military professionals (mean difference significant at $p = .003$). The considerably smaller mean difference is why the *GENDER*-related sample selection bias did not appear in the military professional subsample in the first place. Such a bias is conceivable and thus, in contrast to the suspected gender bias, unproblematic.

Furthermore, wage bracket *LK* significantly predicts participation, which is as well understandable. Employees in lower wage brackets work more often in blue-collar-like settings, whereas employees in higher wage brackets tend to perform more office duties and therefore are more exposed to their email account. This caveat has been addressed by HR professionals contacted during the preparation of the survey and was yet another reason to set wage bracket 15 as a lower boundary.

However, the fact that French speaking invitees did participate significantly more often cannot be explained straightforwardly. Cultural reasons are unlikely, since participation rates do not differ significantly for military personnel nor for senior active reservists, but only for civilian personnel. Details are given in table 3.6. One possible explanation are the rumors spread about authenticity soon

Table 3.6: Binary logistic regression of participation on *LANGUAGE*, *GENDER*, *LK*, *AGE* and *EMPLEVEL*, for military and civilian employees.

	B	S. E.	Wald	df	Sig.	exp B
LANGUAGE[a]			30.379	2	.000	
French	0.374	0.068	30.379	1	.000	1.454
Italian	0.084	0.125	0.448	1	.503	1.087
Female	−0.166	0.108	2.346	1	.126	0.847
LK	0.057	0.006	93.266	1	.000	1.058
AGE	−0.002	0.003	0.359	1	.549	0.998
EMPLEVEL	0.019	0.004	25.767	1	.000	1.019
(constant)	−3.805	0.396	92.243	1	.000	0.022

[a] Base group: German.

after invitation (see chapter 3.3). According to the Information Security and Facility Protection agency, suspicions were communicated by German-speaking civilian employees. It is conceivable that these rumors did not substantially cross language and employee category boarders. If this speculative guess is true, and if participation among German speakers was to be equal to French speakers in the absence of these rumors, this would imply that rumors prevented 383 German-speaking invitees from participating. The respective participation rates depending on language groups within the three subpopulations can be found in table 3.7.

With respect to senior active reservists, there was no *GENDER*- or *LANGUAGE*-related selection bias found. Moreover, tests were performed to detect possible differences between the 5 Grand Units from which the sample was taken. None of the Grand Units differed significantly ($F(4, 2\,276) = 1.650$, $p = .159$) from the others. Details can be found in table 3.8.

However, I expected one particular sample selection bias for senior active reservists. Officers of higher ranks are frequently contacted by their Grand Unit and are therefore used to get military information by email. Consequently, Grand Units maintain their data base down to a certain rank, usually captains in their function as company commanders or officers in a battalion staff. Consequently, subaltern officers and NCOs are less used to get military emails or may have indicated an email account which is not frequently used anymore. Thus, participation rates are expected to rise with higher ranks. This assumption is confirmed by the corresponding binary logistic regression provided intable 3.9.

In conclusion, investigating predictors for participation within the population yields to the following statement about generalizability of the findings presented in the following chapters. Significant sample selection bias has been detected in terms of *EMPLEVEL* and *LK* for military professionals and civilian employees, in terms of *LANGUAGE* for civilian employees and in terms of *RANK* for senior active reservists. These biases are all small in terms of explaining variance, meaning that most of

Table 3.7: Participation rates for all subsamples by languages.

Subpopulation		Language			Total
		D	F	I	
Military professionals	No participation	1 648[a]	475[a]	165[a]	2 288
		68.5%	66.9%	73.0%	68.5%
	Participation	758[a]	235[a]	61[a]	1 054
		31.5%	33.1%	27.0%	31.5%
	Total	2 406	710	226	3 342
Civilian employees	No participation	2 229[a]	313[b]	69[a,b]	2 611
		72.8%	60.3%	64.5%	70.8%
	Participation	834[a]	206[b]	38[a,b]	1 078
		27.2%	39.7%	35.5%	29.2%
	Total	3 063	519	107	3 689
Senior active reservists	No participation	1 043[a]	211[a]	168[a]	1 422
		62.4%	63.0%	61.1%	62.3%
	Participation	628[a]	124[a]	107[a]	859
		37.6%	37.0%	38.9%	37.7%
	Total	1 671	335	275	2 281
Total	No participation	4 920[a]	999[b]	402[a,b]	6 321
		68.9%	63.9%	66.1%	67.9%
	Participation	2 220[a]	565[b]	206[a,b]	2 991
		31.1%	36.1%	33.9%	32.1%
	total	7 140	1 564	608	9 312

[a, b] Each superscript letter denotes a subset of language categories whose column proportions do not differ significantly from each other at the $\alpha = 0.05$ level.

Table 3.8: Participation rates for senior active reservists across the five Grand Units.

	Grand Unit					Total
	Br inf 2	Ter Reg 3	Inf Br 5	Br fant mont 9	Geb Inf Br 12	
No participation	296[a]	188[a]	434[a]	262[a]	242[a]	1 422
	62.6%	58.0%	65.8%	60.4%	62.1%	62.3%
Participation	177[a]	136[a]	226[a]	172[a]	148[a]	859
	37.4%	42.0%	34.2%	39.6%	37.9%	37.7%
Total	473	324	660	434	390	2 281

[a] Each subscript letter denotes a subset of Grand Units whose column proportions do not differ significantly from each other at the .05 level.

Table 3.9: Participation within senior active reservists depended on *RANK*, but not on *GRANDUNIT*, *GENDER*, *AGE*, or *LANGUAGE*. All variables entered in one step.

	B	S. E.	Wald	*df*	Sig.	exp *B*
GRANDUNIT[a]			4.083	4	.395	
Br inf 2	0.183	0.165	1.228	1	.268	1.201
Ter Reg 3	0.228	0.152	2.264	1	.132	1.257
Br fant mont 9	0.268	0.147	3.333	1	.068	1.307
Geb Inf Br 12	0.134	0.133	1.001	1	.317	1.143
Female	0.459	0.492	0.870	1	.351	1.583
AGE	0.002	0.008	0.061	1	.805	1.002
LANGUAGE[b]			0.577	2	.749	
French	−0.075	0.172	0.191	1	.662	0.928
Italian	−0.105	0.158	0.441	1	.507	0.900
RANK	0.047	0.015	10.157	1	.001	1.048
(constant)	−1.508	0.212	50.396	1	.000	0.221

[a] Base category: Inf Br 5.
[b] Base category: German.

variation is presumably according to random effects. Moreover, varying availability for an online survey is a plausible arguments for *EMPLEVEL*-, *LK*- and *RANK*-related sample selection bias. The only caution has to be taken when it comes to *LANGUAGE*-related comparisons within civilian employees. Although it is unlikely that cultural differences affect response behavior for only civilian personnel, but not for military professionals or senior active reservists, subtle differences cannot be excluded. The alternative explanation of authenticity rumors seems plausible, but remains speculative.

Throughout the dissertation, the only reference to languages specifically within civilian employees is for hypothesis 6.8, where civilian employees serve as a control group for hypothesized language-based differences within military professionals. There, I discuss the possible confounding effect and argue that the non-representativeness of languages across civilian employees biases the difference between control group and the group of interest towards zero.

3.5.2 Plausibility checks and data cleansing

The raw sample included 2 991 participants, according to chapter 3.5.1. Before starting data cleansing procedures, plausibility checks were done using three procedures, one to detect fraudulent response behavior, and two to detect careless response behavior, namely the *antonym* and the *long string* approach (Meade & Craig, 2012). The authors showed that both approaches effectively detect careless responses; however, I adapt both approaches for use in this study. First, to correct for a technical flaw in the *antonym*

measure I assume; second, to acknowledge the randomized item presentation, urging for a change of the *long string* approach. I discuss both techniques after the fraudulence detecting procedure.

The first check used the variable *RANK*. Respondents were asked to indicate their military rank. However, the same information was almost comprehensively available from the Swiss Armed Forces personnel data for military professionals and senior active reservists and mostly available in the case of civilian employees. Comparison of the self-reported and the systemically available rank yielded only 4 suspicious cases, one *SPEC OF (MAJ)*[12] indicating the rank of *LTG*, one *WO* indicating the rank of *MG*, one *SWO* indicating the rank of *CSM* and one *SGT* indicating the rank of *PFC*. Contrary to these obvious discrepancies, deviations of up to one rank were considered as either a typing error due to the drop down list or as not actual personnel records. In general, the indicated ranks were used, but where the direction of the mistake was obvious, for example due to wage brackets requiring the higher rank, data were corrected manually. For 15 participants not indicating their rank, the respective information from the personnel record was used instead. Furthermore, rank was compared to age, given that there are lower age limits for certain promotions. This led to the detection of another suspicious case, a 21 years old *contracted officer* indicating the rank of *COL GS*. All but 1 of these 5 suspicious cases fulfilled the survey only marginally and were though dropped before extraction of the raw sample. The fifth suspicious case who had completed the survey was removed due to the rank-related plausibility check. Based on these findings, I conclude an overwhelming majority of participants answered honestly.

A second plausibility check was performed to detect contradictory answers, indicating careless response behavior. Therefore, within-person correlation across item pairs with strong negative correlation was used as a flag variable (Meade & Craig, 2012). Antonym item pairs were defined on behalf of all inter-item correlations. There were 3 disjunct item pairs each with a correlation lower than $-.600$, 2 item pairs with a correlation of $-.583$ and $-.484$, respectively and 10 pairs with correlations between $-.440$ and $-.400$. Meade and Craig (2012) proposed an (arbitrary) cutoff value of $-.600$ leading to 5 antonym pairs in their sample with $n = 350$. However, given the considerably bigger sample size, it seems legitimate to shift the cutoff value to -0.450 to get 5 antonym pairs as well. The respective pairs are listed in table 3.10.

Meade and Craig (2012) distributed their item pairs into two sets, and calculated the inter-person correlation between these two item sets. In the present case of 5 item pairs $(a_i, b_i), i = 1, \ldots, 5$, the Pearson correlation is defined as

$$r_{ab} = \frac{\sum_{i=1}^{5}(a_i - \bar{a})(b_i - \bar{b})}{\sqrt{\sum_{i=1}^{5}(a_i - \bar{a})^2 \sum_{i=1}^{5}(b_i - \bar{b})^2}}. \tag{3.1}$$

12 See table 2.2 for a full list of ranks, abbreviations, and translations.

In my view, this procedure is arbitrary, and may represent a flaw. This suspicion becomes clear if one arbitrarily changes two items in one row of table 3.10. In this case, means $\bar{a}$, $\bar{b}$ of both item columns change, and the correlation is not invariant under such an exchange. Yet the means $\bar{a}$ of all items in the first column and $\bar{b}$ of the second column have no meaning on their own. Apparently, the measure following equation (3.1) depends on the arbitrary assignment of the items to the columns. Therefore the use of the measure seems ill-founded.

As an alternative, I propose to use the Euclidian distance

$$D_A = \sqrt{\sum_{i=1}^{5} (a_i - b_i)^2} \tag{3.2}$$

between the two sets. Therefore, one item of each pair has to be reverse scored, to simplify understanding: in this case, an antonym distance of $D_A = 0$ corresponds to a perfectly coherent response behavior. D_A does not depend of the assignment of the items to each set, since $(a_k - b_k)^2 = (b_k - a_k)^2 \; \forall k$. Thus, D_A is also invariant under the choice of the item to be reverse scored. Further, the Euclidian distance does not introduce meaningless values such as the mean of otherwise unconnected items.

Next, a cutoff value for non-acceptable distances D_A, indicating careless response behavior, has to be defined. Meade and Craig (2011) transformed their measure into z-scores and proposed a cut-off value of -1.96, corresponding to $\Phi^{-1}(0.025) = -1.96$. However, again due to the considerable sample size and assuming normal distribution, this would have corresponded to the accidental loss of about 75 participants. To reduce the risk of too many false-positive cases, I chose a more conservative cut-off value. Visual inspection of the not-normalized data (see figure 3.3, left) showed a fairly normal distribution with some irregularities at the left tail and at the right tail. At the left tail, there are participants answering perfectly consistent – with an antonym distance of $D_A = 0$. At the right tail, starting at $D_A \approx 7$, there are again irregularities within the tail. $D_A = 7$ indicates a mean inner-pair item distance of $\sqrt{49/5} \approx 3.1$. Given score intervals of 5 and 6 as have been used in the survey, this can be considered as quite contradictory response behavior. This corresponds to a z-score of about 3.5 and therefore, the threshold was changed to a more conservative choice of $\Phi(3.5) = .999767$, corresponding to an erratic exclusion of less than 1 participant. This choice of threshold flags 31 participants with $z < -3.5$ for having extraordinary great antonym distances.[13]

A third plausibility check was performed to detect long strings of similar answers, indicating again careless responsive behavior. Meade and Craig (2012) proposed to directly count the maximum length of identical consecutive answers, or, as an alternative, the average length of identical consecutive answers. However, since items were randomly presented in each block (cf. chapter 3.3) to prevent order bias (Fraley, 2007), direct testing for long strings was not possible. Instead, standard deviations were calculated separately for each item block counting 4 or more items, but only for cases with no more than one missing answer. As an indicator variable, the arithmetic mean of all 13 standard deviations was

13 A less conservative threshold of $\Phi^{-1}(0.99) = 2.3263$, corresponding to $D_A = 5.48$ would have led to 64 exclusions, whereas 30 cases would have been expected under normality assumption.

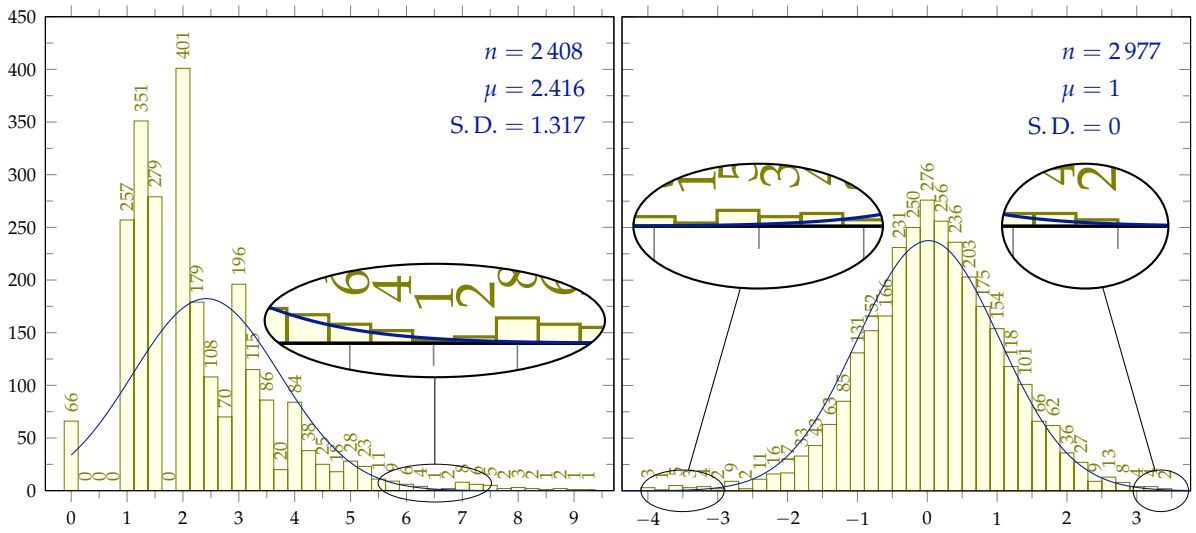

Figure 3.3: Histograms of plausibility check criteria with corresponding normal distribution: distances in 5 antonym pairs (left) and z-scores of average standard deviations in item blocks (right).

calculated for each participant, whenever there were at least 4 blocks out of 13 with a valid measure. The arithmetic mean was standardized. Since this procedure deviates from Meade and Craig (2012), a cut-off value was chosen according to the visual inspection of the histogram (see figure 3.3, right). Therefore, the threshold was changed to a more conservative choice of $\Phi^{-1}(0.001) = -3.0902$, corresponding to an erratic exclusion of 3 participants, assuming the z-scores of standard deviations across item groups to be normally distributed in the absence of careless response behavior. Due to this choice, 18 participants with $z < -3.0902$ were flagged has having extraordinary low standard deviations in response blocks.[14]

Finally, as a finding that came along with the third plausibility check, there were 13 cases having less than 4 answer blocks with no more than 1 missing answer. These cases where consequently interpreted as heavily missing data and therefore dropped as well. Together with the 50 cases dropped due to plausibility checks, 63 cases were removed from the raw sample, leading to a purified sample size of $n = 2\,928$. An overview can be found in table 3.11. For exploratory reasons, the same procedure was re-applied to the reduced sample. New cases beyond the threshold are expected, given the new distributions. Indeed, there were 3 cases with $z < -3.0902$, indicating extraordinary low standard deviations across item blocks and 5 cases with $z > 3.5$ indicating contradictory response behavior, according to chosen cut-off. In terms of the standard deviation measure, 3 cases correspond exactly to the expectancy value with given sample size and z-score. In terms of the antonym distance measure, the expectancy value would be $\Phi(-3.5) \cdot n = 0.68$, definitely less than the newly appearing 5 cases. However, contradictoriness is a question of interpretation and therefore, it seems adequate to tolerate a wider range of response behaviors by attributing them to be authentic, although they may be contradictory in a statistical sense. Thus, I kept these newly appearing cases within the sample.

14 A less conservative threshold of $\Phi^{-1}(0.01) = -2.3263$ would have led to 43 exclusions, whereas 30 cases would have been expected under normality assumption.

Table 3.10: Antonym pairs used as plausibility check.[a]

Item a	Item b	r_{ab}	n	Part of scale
I feel a strong sense of «belonging» to my organization.	I do not feel «emotionally attached» to this organization.	−.651	2 824	organizational commitment
It would be difficult to find new employment should I leave my current job.	I am confident that I would find employment if I would start looking.	−.650	2 659	employability
I will quickly find equivalent employment if I am made redundant.	It would be difficult to find new employment should I leave my current job.	−.614	2 593	employability
I am proud to be part of this organization.	I do not feel «emotionally attached» to this organization.	−.583	2 824	organizational commitment
Because my workload is difficult to plan, I have problems ensuring my private obligations are dealt with.	I easily manage both my work- and private obligations.	−.484	2 701	work-life balance

[a] Pearson correlation coefficients r_{ab} are significant (2-tailed) at $p < 10^{-157}$.

Table 3.11: Cases matched due to methods detecting careless response behavior.

Carelessness criterion	Description	Counts	%	Σ %
no criterion matched	uncritical	2 871	96.0	96.0
$-3.0902 < z(\bar{s}) < -2.3263$	low average S. D.	24	0.8	96.8
$7 > D_A > 5.48$	big antonym distances	32	1.1	97.9
$7 > D_A > 5.48$ *and* $-3.0902 < z(\bar{s}) < -2.3263$	low average S. D. *and* big antonym distances	1	0.0	97.9
$z(\bar{s}) < -3.0902$	very low average S. D.	18	0.6	98.5
$D_A > 7$	very big antonym distances	31	1.0	99.6
less than 4 blocks with no more than 1item missing	lots of missings	13	0.4	100.0
Total		2 990	100.0	

Age regression was needed for sample selection bias, since AGE data was not available from the system in the case of Br inf 2. In all but 2 cases, participants from Br inf 2 indicated their AGE. The 2 missings, both first lieutenants, were imputed by the regression result (28.59 years).

Further data cleansing was done in terms of indicated working hours. The item «On average, how many hours did you work per week during the last 6 months?» was apparently misunderstood by some participants. 6 participants indicated between 158 and 294 working hours per week and 5 respondents between 1 080 and 1 504 hours. The first 6 values were corrected under the assumption that these participants indicated working hours per month instead of week. The last 5 values were corrected under the assumption that these participants indicated working hours for the last 6 months in total. Furthermore, there were bivariate outliers with respect to working hours and employee level. 54 participants indicated less than 20 working hours, although this did not correspond with there employment level. I assumed that they indicated average working hours per day instead. Consequently, these values were multiplied by 5, given an employment level of 100%, and by 4, given an employment level of 80%.

3.5.3 The final sample

After data cleansing, a sample of $n = 2\,928$ remained for testing hypotheses 4.1 to 6.8. Demographic descriptives are listed in table 3.12 for the general sample. Table 3.13 presents descriptives with respect to employees, and table 3.14 with respect to senior active reservists. Comparisons between sample and population can be found in chapter 3.5.1. A part from these commonly used controls, other variables merit special attention; namely social desirability, tenure, rank, branches, and culture. Chapter 3.6.4 will treat each of them individually, explaining why special attention is needed, and report descriptives based on the sample of $n = 2\,928$ participants.

Table 3.12: Descriptive statistics in demographic control variables, applicable for all subsamples. Number of cases are indicated with respect to total (% share within total in parentheses).

		Subsample			Total
		military professionals	civilian employees	active reserve	
Language	German	727 (70.4%)	796 (75.9%)	601 (71.0%)	2 124 (72.5%)
	French	234 (22.7%)	198 (18.9%)	116 (13.7%)	548 (18.7%)
	Italian	64 (6.2%)	47 (4.5%)	120 (14.2%)	231 (7.9%)
	Romansh	4 (0.4%)	6 (0.6%)	5 (0.6%)	15 (0.5%)
	others	3 (0.3%)	2 (0.2%)	5 (0.6%)	10 (0.3%)
Age	< 31 years	203 (19.7%)	48 (4.6%)	415 (49.0%)	666 (22.7%)
	31 - 40 years	325 (31.5%)	229 (21.8%)	277 (32.7%)	831 (28.4%)
	41 - 50 years	316 (30.6%)	303 (28.9%)	133 (15.7%)	752 (25.7%)
	> 50 years	188 (18.2%)	469 (44.7%)	22 (2.6%)	679 (23.2%)
Gender	male	1 012 (98.1%)	934 (89.0%)	839 (99.1%)	2 785 (95.1%)
	Female	20 (1.9%)	115 (11.0%)	8 (0.9%)	143 (4.9%)
Marital status	single	387 (37.5%)	244 (23.3%)	553 (65.3%)	1 184 (40.4%)
	married[a]	549 (53.2%)	666 (63.5%)	261 (30.8%)	1 476 (50.4%)
	widowed	5 (0.5%)	7 (0.7%)	1 (0.1%)	13 (0.4%)
	separated	17 (1.6%)	21 (2.0%)	9 (1.1%)	47 (1.6%)
	divorced[b]	73 (7.1%)	109 (10.4%)	16 (1.9%)	198 (6.8%)
	no information	1 (0.1%)	2 (0.2%)	7 (0.8%)	10 (0.3%)
Children	no children	447 (43.3%)	365 (34.8%)	589 (69.5%)	1 401 (47.8%)
	children	558 (54.1%)	661 (63.0%)	214 (25.3%)	1 433 (48.9%)
	no information	27 (2.6%)	23 (2.2%)	44 (5.2%)	94 (3.2%)
Highest education	compulsory school	14 (1.4%)	14 (1.3%)	5 (0.6%)	33 (1.1%)
	apprenticeship[c]	418 (40.5%)	338 (32.2%)	121 (14.3%)	877 (30.0%)
	high school	123 (11.9%)	39 (3.7%)	119 (14.0%)	281 (9.6%)
	higher voc. education	177 (17.2%)	338 (32.2%)	129 (15.2%)	644 (22.0%)
	bachelor/master/above	300 (29.1%)	320 (30.5%)	473 (55.8%)	1 093 (37.3%)

[a] Including registered partnership.
[b] Including dissolved partnership.
[c] Including vocational school.

Table 3.13: Descriptive statistics in organizational control variables for employed personnel. Number of cases are indicated with respect to total (% share within total in parentheses).

		Subsample		Total
		military professionals	civilian employees	
Employment level	1% - 50%	2 (0.2%)	15 (1.4%)	17 (0.8%)
	51% - 90%	4 (0.4%)	72 (6.9%)	76 (3.7%)
	91% - 100%	274 (26.6%)	962 (91.7%)	1 236 (59.7%)
	according to service needs[a]	752 (72.9%)	0 (0.0%)	752 (35.8%)
Wage bracket	staff	299 (29.0%)	278 (26.5%)	577 (27.7%)
	junior management[c]	411 (39.8%)	476 (45.4%)	887 (42.6%)
	middle management[d]	231 (22.4%)	260 (24.8%)	491 (23.6%)
	senior management[e]	72 (7.0%)	30 (2.9%)	102 (4.9%)
	top management[f]	19 (1.8%)	5 (0.5%)	24 (1.2%)
Organizational Unit	Armed Forces Staff (A Stab)[b]	19 (1.8%)	105 (10.0%)	124 (6.0%)
	Armed Forces Joint Staff (FST A)	171 (16.6%)	93 (8.9%)	264 (12.7%)
	Armed Forces College (HKA)	51 (4.9%)	30 (2.9%)	81 (3.9%)
	Air Force (LW)	225 (21.8%)	153 (14.6%)	378 (18.2%)
	Land Forces (HE)	481 (46.6%)	98 (9.3%)	579 (27.8%)
	A. F. Logistics Org. (LBA)	22 (2.1%)	390 (37.2%)	412 (19.8%)
	A. F. Command Support Org. (FUB)	13 (1.3%)	118 (11.2%)	131 (6.3%)
	no information	50 (4.8%)	62 (5.9%)	112 (5.4%)

[a] This is the formal contract status of career officers, career NCOs, and flying personnel (V Mil Pers, 2016, Art. 19). Including unlimited working hours without compensation, unless it is done on Sundays.
[b] German abbreviations in parentheses. For more details, see chapter 2.1.1.
[c] German: Basiskader.
[d] German: Mittleres Kader.
[e] German: Höheres Kader.
[f] German: Topkader.

Table 3.14: Descriptive statistics in control variables for senior active reservists. Number of cases are indicated with respect to total (% share within total in parentheses).

Employment level	not employed	44 (5.2%)
	1% - 50%	60 (7.1%)
	51% - 90%	72 (8.5%)
	91% - 100%	610 (72.0%)
	according to service needs[a]	61 (7.2%)
Wage in CHF/month	less than 2 000	135 (15.9%)
	2 000 - 3 999	68 (8.0%)
	4 000 - 5 999	159 (18.8%)
	6 000 - 7 999	177 (20.9%)
	8 000 - 9 999	118 (13.9%)
	10 000 - 14 999	124 (14.6%)
	more than 15 000	55 (6.5%)
	no information	11 (1.3%)
Sector	agriculture and forestry	11 (1.3%)
	manufacturing industry	77 (9.1%)
	technique and IT	129 (15.2%)
	construction and mining	103 (12.2%)
	trade and transport	39 (4.6%)
	hotel and restaurant industry, services	17 (2.0%)
	management, administration, banking, insurance, law	266 (31.4%)
	healthcare, education, culture, science	100 (11.8%)
	others	105 (12.4%)
Grand Unit	Infantry Brigade 2 (Br inf 2)[b]	174 (20.5%)
	Territorial Region 3 (Ter Reg 3)	132 (15.6%)
	Infantry Brigade 5 (Inf Br 5)	224 (26.4%)
	Mountain Infantry Brigade 9 (Br fant mont 9)	170 (20.1%)
	Mountain Infantry Brigade 12 (Geb Inf Br 12)	147 (17.4%)

[b] Abbreviation in the Grand Unit's main language in parentheses.
[a] See table 3.13. Senior active reservists were provided with the same answering option, to indicate non-regulated working hours.

3.5.4 Attrition

Due to some attrition during the survey, participant counts are decreasing. To adhere to the principle of missing data analysis (Newman, 2009, p. 11), that is using all data are whenever possible, sample size varies depending of the construct's position within the survey. For instance, organizational commitment items were on an early position within the survey. In contrast, vocational commitment items were postponed to the end of the survey. Consequently, $n = 2\,803$ cases were used for organizational commitment as a stand-alone construct, but where its relationship to vocational commitment was investigated, only the $n = 2\,697$ cases with data for both constructs were accounted for. The varying sample sizes are provided in table 3.15, forestalling the subdivision of the sample into subsamples and categories, to be introduced in chapter 3.6.1.

Table 3.15: The nominal variable *SUBSAMPLE* distinguishes 3 and *CATEGORY* distinguishes 10 subsamples. The respective sample sizes are indicated for different constructs along the survey, varying due to attrition within the survey.

					Construct
***Subsample* / Category**	Psychological contract	Outcome variables	Organizational commitment	Work orientation	Vocational commitment
Military professionals	*1 032*	*1 000*	*997*	*969*	*952*
Flying personnel (BFK)	59	57	57	56	55
Career officers (BO)[a]	319	313	312	310	306
Career NCOs (BU)	374	365	365	353	346
Specialized officers/NCOs (FBM)	144	138	137	126	123
Contracted officers/NCOs (ZM)	136	127	126	124	122
Civilian employees	*1 049*	*1 002*	*995*	*970*	*950*
Active reserve status	394	378	376	369	364
Former reservist	504	480	476	462	454
No reserve status	151	144	143	139	132
Senior active reservists	*847*	*818*	*811*	*803*	*(795)*[b]
Officer (OF)	730	704	698	691	(685)
Senior NCOs (SNCO)	117	114	113	112	(110)
Total	**2 928**	**2 820**	**2 803**	**2 742**	**(2 697)**

[a] including generals (HSO)
[b] Vocational commitment was not applied to senior active reservists. Counts of the respective position in the questionnaire are indicated for comparative purposes only.

3.6 Measurements

This chapter provides information about the measurements relevant to the three main chapters 4 to 6. Chapter 3.6.1 presents how the sample may be subdivided beyond the three subsamples military

professionals, civilian employees, and senior active reservists. Chapter 3.6.2 gives an overview of the core constructs. The detailed elaboration can be found in chapter 4.3.1 for psychological contract measurements, in chapter 5.3.1 for organizational commitment measurements, and in chapter 6.3.1 for work orientation measurements. Chapter 3.6.3 provides descriptives of the outcome variables common to the three main chapters, and chapter 3.6.4 does the same for control variables.

In the questionnaire, items were randomly presented, to reduce order effects (Fraley, 2007, p. 132). Yet complete randomization would make answering cognitively exhausting. Thus, as a compromise, I randomized items within coherent blocks. For instance, page 8 of the survey presents the 4 items of OC_{cont} in the upper third of the page, followed by the 4 items of OC_{affe} in the middle third, and the 4 items of OC_{norm} in the lower third of the page. Within these blocks, the 4 items were randomized. Such a grouping may lead to higher correlations between items, but the effect has been found to be only modest in online surveys (Couper, Traugott, & Lamias, 2001, p. 244). The item blocks were then ordered following layout recommendations (Saris & Gallhofer, 2007, p. 167–169). The list of all used survey items in appendix A indicates their respective position within the questionnaire. For the above example, OC_{cont} is indexed with the position 8.2, OC_{affe} with the position 8.3, and OC_{norm} with the position 8.4.

3.6.1 Grouping variables

Throughout the dissertation, the analysis often differentiates between the three subsamples of military professionals, civilian employees, and senior active reservists. This is represented by the nominal variable *SUBSAMPLE*. In addition, the *CATEGORY* variable differentiates between 9 narrower categories.

Therefore I separate military professionals into 5 occupational categories. A more fine grained separation according to vocational groups was taken into account, but withdrawn, given that the corresponding cell counts became too low (see table 3.16). Thus, in correspondence with army regulations (V Mil Pers, 2016, art. 2, 1a), generals (senior staff officers in Swiss Armed Forces terminology) were subsumed under career officers. Similarly, specialist officers and specialist NCOs (art. 2, 4), board operators and career air force pilots (art. 2, 3), contracted officers and contracted NCOs (art. 10) were subsumed in three categories.

I separate civilian employees into *active reserve status* holders, *former reservists*, and those who never had reserve status (*no reserve status*). Finally, *CATEGORY* subdivides senior active reservists into officers and SNCOs (DR 04, 2015, section 22, 7–8). Table 3.15 provides counts for *SUBSAMPLE* and *CATEGORY* at different points within the survey.

3.6.2 Core constructs

The dissertation builds on three core constructs, each elaborated in the respective chapter: *psychological contract* (chapter 4), *organizational commitment* (chapter 5), and *work orientations* (chapter 6). Here, only a summary is provided, to put each measurement into the context of the survey.

The *psychological contract* is defined in the tradition of Rousseau (1989; Rousseau, 1990), but in an expanded version of three dimensions, namely the transactional, relational, and ideational contract.

Table 3.16: Military professionals by vocational categories. Number of cases are indicated with respect to total (% share within total in parentheses).

Senior staff officer[a]	(HSO)[b]	18 (1.7%)
Career officer	(BO)	301 (29.2%)
Career non-commissioned officer	(BU)	374 (36.2%)
Specialized career officer	(FBO)	17 (1.6%)
Specialized career non-commissioned officer	(FBU)	127 (12.3%)
Contracted officer	(ZO)	71 (6.9%)
Contracted non-commissioned officer	(ZU)	65 (6.3%)
Board operators	(BBO)	4 (0.4%)
Career air force pilot	(BMP)	55 (5.3%)

[a] Corresponds to Generals in the international context. For more details, see chapter 2.1.2.1.
[b] German abbreviations in parentheses.

Rousseau (1990) originally understood the transactional and relational as opposite ends of one continuum (p. 391), a notion that has gained ongoing attention (e. g., Millward & Hopkins, 1998). Later, Rousseau and Wade-Benzoni (1994) allowed for a rather independent combination of the dimensions. In this view, Thompson and Bunderson (2003) proposed a third dimension, the ideational contract, which was first operationalized by Bingham (2005). For the present survey, I rely on Bingham's (2005) measurement, given its «excellent psychometric characteristics in terms of reliability and factor structure» (Vantilborgh et al., 2014, p. 222). To distinguish the terminology of the different multi-dimensional contracts, I denote the dimensions of the psychological contract as *layers*.

Organizational commitment is conceptualized after the widely known three-component model (TCM; N. J. Allen & Meyer, 1990), distinguishing continuance, affective, and normative organizational commitment. Commitment has been expanded to other foci, such as top management, supervisors, or teams (T. E. Becker, 2009). In this study, I consider the occupation as an additional focus (Meyer et al., 1993), but only for the employed subsample. To distinguish this focus from the *Occupation* as a label in the following construct, I use the term *vocational commitment* instead throughout the dissertation. In accordance with the terminology of the TCM, I denote the dimensions of both the organizational and the vocational commitment as *components*.

To measure *work orientations*, I rely on Wrzesniewski et al.'s (1997) measurement of Job, Career, and Calling orientations, a typology suggested by Bellah et al. (1985). However, Moskos (1977a) proposed another triad, namely Occupation, Profession, and Calling. Chapter 6 shows that Moskos's (1977a) Occupation is identical to Wrzesniewski et al.'s (1997) Job orientation, and that their Calling concepts are congruent, as well. In contrast, the Profession orientation is clearly distinct. Consequently, I develop a particular measurement for this proposed fourth orientation in chapter 6.3.1. Given that I understand each orientation as an ideal type, I denote the proposed 4 dimensions of the work orientation construct as *types*.

3.6.3 Outcome variables

Three outcome variables are common to the whole dissertation: work satisfaction, turnover intention and work effort. Moreover, army-life balance, as contextual adaptation of work-life-balance, is applied in chapter 6. These outcome variables are relevant for both individuals and organizations (Judge & Klinger, 2008; Griffeth, Hom, & Gaertner, 2000; De Cooman, De Gieter, Pepermans, Jegers, & Van Acker, 2009; T. D. Allen, Herst, Bruck, & Sutton, 2000); I introduce these variables in the next paragraphs. What is more, but not in contradiction to its claim on generalizability, the present dissertation is at the same time a case-study about the Swiss Armed Forces. Thus, the presentation of these outcomes includes some unusually detailed descriptives, yet irrespective of the core constructs introduced in chapter 3.6.2. The fusion of core constructs and outcomes is only subject to the main chapters 4 to 6.

3.6.3.1 Work satisfaction. In Organizational Behavior research, work satisfaction has a long tradition (e. g., Hoppock, 1935; Locke, 1969; Porter, Steers, Mowday, & Boulian, 1974) and is one of the best, if not *the* best studied construct in the field (Judge, Parker, Colbert, Heller, & Ilies, 2001, p. 25). Despite the breath and depth of studies, scholars remain ambiguous about how work satisfaction relates to organizationally desirable outcomes, such as high performance, or low withdrawal behaviors. For instance, Iaffaldano and Muchinsky (1985) estimated in a meta-analysis of $k = 74$ studies with $n = 12\,192$ participants the true sample correlation between work satisfaction and performance to be only $\hat{r} = .17$. This finding led them to conclude that the relationship is almost «illusory» (p. 207). However, the importance of work satisfaction is well grounded in its relevance to subjective well-being, which has consistently been found in empirical studies (Judge & Klinger, 2008, p. 403). Furthermore, associations with work satisfaction seem stronger in more complex jobs (Judge, Bono, & Locke, 2000). Thus, given that the chosen sample is taken from an above-average job level (see chapter 3.2), and due to its importance to the individual's well-being, the relevance of work satisfaction in the study is undeniable.

Work satisfaction was measured by a single item, asking «All in all, how satisfied are you with your work/employment on a range between 1 and 10 (1 being completely dissatisfied, 10 being completely satisfied)?». The question was adapted for senior active reservists («…with your military service…»). I chose *Work satisfaction* as a label to keep the terminology stringent between samples, referring to the satisfaction of both employees and reservists with their activities in the Swiss Armed Forces . Appendix A.4.2 provides German, French and Italian translations.

Single item measures are usually not recommended in Organizational Behavior research, despite its convenience for practitioners (Wanous & Hudy, 2001). However, Wanous, Reichers, and Hudy (1997)

Box 3.1: Survey participants reflecting work satisfaction

«Ich bin mit meinem Arbeitgeber sehr zufrieden und möchte noch wenn möglich die nächsten 10 Jahre beim VBS arbeiten.» [no. 715]

«Ich bin überglücklich für den Arbeitgeber Schweizer Armee zu arbeiten!» [no. 623]

have shown that 1-item measures of work satisfaction have acceptable reliability characteristics and may thus be used in research, as long as one is interested in the global characteristics rather than in the facets (Judge et al., 2001). Thus, in regard with survey length constraints (chapter 3.3), I judge[15] the 1-item measure to be suitable.

Previous studies regarding work satisfaction in the Swiss Armed Forces concentrated on career officers and career NCOs (e. g., Gutknecht, 2005, 2007; Stocker, Jacobshagen, Semmer, & Annen, 2010; Proyer, Annen, Eggimann, Schneider, & Ruch, 2012). Thus descriptives with respect to civilian employees and senior active reservists provide some new insights.

Across the $n = 2\,683$ participants rating the work satisfaction (4.7% of missings, sample size 2 820 at this point of the study; see chapter 3.5.4), mean was high with $\mu = 7.38$ (S. D. 1.64) on the $[1, 10]$-scale. However, such a left skew of -1.17 is not extraordinary for work satisfaction, and does not ultimately call for transformation (e. g. Duffy, Dik, & Steger, 2011, p. 213). Thus, I integrate it into the calculations as measured. Multiple imputation (MI; Allison, 2001) was applied as for most variables (see chapter 3.7 for a description of the procedure), according to the principle of using all available data (Newman, 2009, p. 11). Imputed data barely differ in sample statistics ($\mu = 7.36$, S. D. 1.64).

Based on imputed data, oneway ANOVA shows that the differences for military professionals (7.34), civilian employees (7.59), and senior active reservists (7.12) are highly significant, with $F(2, 2817) = 18.901$, $p < .001$. *Post hoc* pairwise Bonferroni-comparisons (Levene's test was only marginally significant, $F = 2.595$, $p = .075$) reveal that indeed, senior active reservists perceive considerably lower satisfaction with service than employees perceive with regard to their jobs. The difference between military and civilian employees was strongly significant ($p < .01$), too. Further tests revealed that within military professionals, specialist officers and NCOs were significantly ($p < .05$) less satisfied (6.86) than career officers (7.52) or career NCOs (7.32); other differences within professionals or within civilians not being significant. The next three paragraphs describe differences due to age, job level, rank, and language separately for each subsample.

Military professionals show strongly significant differences with regard to age ($F(3, 996) = 4.312$, $p = .005$), with those between 31 and 40 years being considerably less satisfied (7.07) than those below 31 (7.46), between 41 and 50 (7.41), and beyond 50 (7.54). In addition, top management and senior management are more satisfied ($F(4, 995) = 5.088$, $p < .001$) than those in lower wage brackets. In accordance with these findings of age and wage brackets, captains and NCO are least, and senior staff officers most satisfied, $F(5, 994) = 3.805$, $p = .002$. Language groups do not differ, $F(4, 995) = .901$, $p = .463$.

Civilian employees differ according to language ($F(4, 997) = 2.308$, $p = .056$), Italian-speaking employees being significantly ($p < .05$) more satisfied (8.11) than German (7.60) or French (7.40) speakers, according to Dunnett's (1980) C. In addition, similar age differences as for military professionals are present ($F(3, 998) = 5.272$, $p = .001$), but here, those between 41 and 50 years are the least satisfied (7.38),

15 pun intended

Box 3.2: A Survey participant reflecting turnover intentions

«ich habe vor 3 Wochen meine Anstellung als BO gekündigt – ohne momentan eine zivile Stelle in Aussicht zu haben. Dies vor allem Aufgrund des fehlenden Privatlebens während einer Arbeitswoche.» [no. 970]

and differences are smaller. Job level does not influence satisfaction ($F(4, 997) = .411$, $p = .801$), and neither does rank ($F(6, 995) = 1.968$, $p = .068$; no pairwise significant differences at $\alpha = .05$).

Senior active reservists include no differences according to language, $F(4, 813) = .539$, $p = .707$. However, age has a highly significant influence ($F(3, 814) = 6.076$, $p < .001$), according to the pattern «the older, the more satisfied», increasing from 6.98 for those below 31 years up to 7.55 for those between 41 and 50, and as high as 8.04 for those beyond 50 (though with a small $n = 20$). Ranks reflected these differences ($F(3, 814) = 10.454$, $p < .001$) with SNCOs being least (6.61) and staff officers being most (7.64) satisfied with service. Between the different Grand Units, there was not a bit of a difference, $F(4, 813) = .115$, $p = .977$.

To summarize, three issues appear. First, the age group between 31 and 40 years for military professionals in general; second, the occupational category of specialist officers and specialist NCOs in particular; and third, within the active reserve, SNCOs. Although the present diagnosis does not propose any solution, and the dissertation focuses on generalizable findings between constructs rather than sample-specific issues, it seems opportune to point out these potentially problematic groups, if the Swiss Armed Forces are inclined to improve satisfaction amongst their staff and management.

3.6.3.2 Turnover intention. Both researchers and practitioners have devoted enormous attention to employee turnover for decades, aware of the costs produced by turnover (e. g., Griffeth et al., 2000). Cascio (2006) indicates a range from 90% to 200% of annual salary as total cost that can be associated with turnover. This perception of employee turnover as costly and harmful is representative for both researchers and practitioners (D. G. Allen, Bryant, & Vardaman, 2010). In the Swiss Armed Forces, turnover-rates are particularly low with 1.7%, 2.5%, and 2.0% for the years 2010, 2011, 2012 for civilian personnel and only 1.2%, 1.6%, and 1.5% for military personnel (Federal Office of Personnel, 2013).

In a setting with «idiosyncratic businesses, methods, or cultures» (Lazear, 2009, p. 84), low turnover rates are expected. However, turnover has healthy functions as well, such as sorting, especially within narrowing-up hierarchies. Turnover may also foster technical and organizational changes (p. 82).

Empirically, turnover can be accounted for at different stages of the related process, such as withdrawal cognitions, withdrawal behaviors (e. g., job search), and actual turnover (Holtom, Mitchell, Lee, & Eberly, 2008). I suggest that measuring effective turnover in the present study is not conclusive, given the low shares with accordingly low variances. In contrast, there is much more variance in withdrawal cognitions and behaviors, both relevant with regard to «detached» (Woo & Allen, 2014) or even «reluctant» (Hom, Mitchell, Lee, & Griffeth, 2012) stayers.

I measure withdrawal cognitions and behaviors using three items from Bozeman and Perrewé (2001), provided in appendix A.4.3. The three items chosen comprise three different aspects of withdrawal, that is staying intentions (TI_{NOPLAN}), leaving intentions (TI_{FUTURE}), and search behavior (TI_{ACTIVE}). To embrace this variety, I denote the scale more generally as *turnover intention*. German, French and Italian translations were created, validated and provided in collaboration with Sender-Jedrzejewska (2016) and Morf (2016), using standard translation-backtranslation procedures. The turnover intention measure is applied to employees only. Senior active reservists were asked questions about their *intention to hire* instead. The corresponding items are of no concern in this study and will be evaluated beyond the present dissertation. Accordingly, the items are not provided in appendix A.

For the $n = 2\,002$ employees of the outcome-relevant sample, the scale reliability $\alpha = .767$ was acceptable; in light of the low number of items, it may even be considered good. Omitting the reverse-scored variable TI_{NOPLAN} would have further enhanced Cronbach's α to .853; presumably because reversed items load weaker on scales (e.g, Schriesheim, Eisenbach, & Hill, 1991), but maybe also because of the difference between staying and leaving intentions (Cho, Johanson, & Guchait, 2009). Yet recent turnover researchers advocate including both aspects (e. g., Woo & Allen, 2014), and Cronbach's α corroborates the aggregation of the three items into one scale.

Across employee categories, considerable differences exist ($F(4, 1997) = 5.726$, $p < .001$), although at generally low levels. Specialized officers/NCOs report the highest score of turnover intentions ($\mu = 2.55$ on a scale $[1, 6]$), followed by contracted officers/NCOs (2.41), and flying personnel (2.36). Career officers (2.17) and career NCOs (2.19) are below average. Averages in civilian categories range from 2.08 for employees with former reserve experiences to 2.48 for still incorporated employees; this, however, is likely to be induced by age (see the next but one paragraph). Over all, differences are relatively small, and only few of them are significant in terms of *post hoc* pairwise comparisons (Dunnett, 1980).

Military professionals do not differ with respect to languages ($F(4, 995) = 0.161$, $p = 0.957$), but rather with respect to age, $F(3, 996) = 5.266$, $p = .001$. Yet only the age group beyond 50 years (1.98) differs significantly ($p < .05$) from the other groups. It is noteworthy that those between 31 and 40 years report the highest turnover intentions (2.40), anticipating the critical situation of this age group with respect to army-life balance, as elaborated later in this chapter. Not surprisingly, job level is also a significant predictor of turnover intentions ($F(4, 995) = 3.659$, $p = .006$), with senior (2.02) and top management (1.43) being substantially below the average of 2.27. This is further corroborated by the differences due to ranks ($F(5, 994) = 4.822$, $p < .001$), again with senior staff officers reporting very low scores (1.25). NCOs (2.65) and captains (2.47) report the highest turnover intentions, the former reflecting the situation of the specialized career NCOs, and the latter again anticipating the finding that army-life balance is worst for captains. There are no differences with respect to branch categories, $F(3, 821) = 0.709$, $p = .547$.

Civilian employees do not differ with respect language either, $F(4, 997) = 1.529$, $p = 0.191$, and the age pattern is identical to the one among military professionals, $F(3, 998) = 12.041$, $p < .001$.

Noteworthy, the effect of job levels is reciprocal to the one found among military professionals, with higher levels reporting significantly higher turnover intentions, $F(4, 997) = 2.957$, $p = .019$. As for military professionals, branch has no impact on turnover intentions, $F(3, 344) = 0.283$, $p = .837$.

3.6.3.3 Work effort. The work effort scale has been introduced by De Cooman et al. (2009). The construct is placed between motivation and performance (p. 266) an seems ideal to the study at hand. Researchers (and some practitioners) have striven to increase performance in the public sector in recent decades, in the international as well as in the Swiss context (Ritz, 2009). However, Ritz (2009) also criticizes the disregard of attitudinal and institutional implications of this striving. In addition, output and performance is particularly hard to measure in public service (p. 56). Yet motivational measures such as public service motivation (Perry & Wise, 1990) are too remote from what I want to take into account. Thus, I opt for work effort as a compromise between motivational and performance measurements.

The validated 10-item scale consists of 3 sub-dimensions *intensity*, *direction* and *persistence*. Sample items were «I think of myself as a hard worker» ($WE\text{-}I_{\text{HARDW}}$), «I do my best to do what is expected of me» ($WE\text{-}D_{\text{EXPEC}}$), and «I do not give up quickly when something does not work well» ($WE\text{-}P_{\text{GIVUP}}$). All items and translations can be found in appendix A.4.4. I performed an exploratory factor analysis (EFA), since the construct has not yet been applied to a military sample. Technically, EFA is performed by means of a Principal Axis Factoring, based on correlations, with *promax* rotation (see chapter 3.8).

Including work effort as a third outcome variable bears advantages both to practitioners and scholars. On the one hand, work effort is of practical relevance, given that it comprises the totality of behaviors beneficial to the organization, including duty-related and voluntary behaviors (De Cooman et al., 2009). On the other hand, work effort has been used by Vantilborgh et al. (2014) to investigate outcomes of *relational* and *ideational* psychological contract fulfillment in a sample of $n = 299$ volunteers from 71 non-profit organizations. Therefore, it offers an opportunity to test the generalizability of these findings for non-volunteers and transactional fulfillment.

Preliminary analysis of the 10 item statistics reveal that they all have high averages, between 4.63 and 5.45 on a $[1, 6]$ scale. Accordingly, items are strongly left skewed and leptokurtic (see appendix A.4.4). Presumably, these irregularities prevent the EFA from extracting the three predicted factors; neither scree plot nor Kaiser criterion supports the extraction of more than 1 or 2 factors. Forcing the PAF to extract 3 factors yields a low to very low eigenvalues of the 2$^{\text{nd}}$ and 3$^{\text{rd}}$ factor (0.854, 0.629). At least, 8 items load on the expected factors, and only 2 items show considerable cross-loadings: $WE\text{-}I_{\text{MBEST}}$ loads with $\lambda = .390$ on *intensity*, but even stronger on *direction*. In contrast, $WE\text{-}D_{\text{TRUST}}$ only loads with $\lambda = .288$ on the expected factor *direction*, but considerably stronger on the assumed *persistence* factor ($\lambda = .511$). Omitting these two variables does not solve the extraction issue; yet, 2$^{\text{nd}}$ and 3$^{\text{rd}}$ eigenvalues even drop.

Consequently, I refrain from analyzing outcomes regarding the different components of work effort. This is acceptable, because I am interested in the global outcomes of work effort rather than its internal structure. Cronbach's $\alpha = .904$ indicates that the sum of all 10 items represent an internally consistent scale. Thus I apply work effort as an aggregated measure of the 10 items suggested by De Cooman et

Box 3.3: A survey participant reflecting work effort

« Au sein de ma brigade, j'ai clairement vu le nombre de vrais miliciens diminuer drastiquement depuis armée XXI ; il en résulte une culture du travail qui se rapproche du fonctionnariat (travail parfait dans sa forme, sans se préoccuper du temps consacré à la mission), plutôt que de la culture entrepreneuriale (qualité du travail à 80%, mais dans un temps optimal pour un résultat maximal). » [no. 1459]

al. (2009). Next, several oneway ANOVA are performed to describe differences within the sample of $n = 2\,820$ participants at the outcome stage of the questionnaire (see chapter 3.5.4).

Between subsamples, there are significant differences, $F(2, 2817) = 38.912$, $p < .001$. Military professionals and civilian employees report almost identical effort, but senior active reservists report distinctively lower values. This may be a reflection of pragmatism, which is often attributed to reservists, in contrast to employees. This speculative interpretation goes beyond the scope of the dissertation, but includes a suggestion for further research. Within subsamples, no significant differences are found according to categories (see chapter 3.6.1), but with regard to some characteristics.

Within military professionals as a group, language does not account for differences ($F(4, 995) = 1.737$, $p = .140$), but age ($F(3, 996) = 9.574$, $p < .001$), job level ($F(4, 995) = 5.484$, $p < .001$), and rank do, $F(5, 994) = 3.68$, $p = .003$. In fact, older, higher positioned, and higher ranked professionals consistently report higher effort. One may argue that this reflects a changing work understanding due to generational changes (see the discussion in chapter 6.2.5).

Within the group of civilian employees, again no differences are found according to languages, $F(4, 995) = 1.737$, $p = .140$. Remarkably, the above mentioned «seniority-induced» changes can not be found. Civilians report an effort level independent of age ($F(4, 995) = 1.737$, $p = .140$), rank ($F(6, 995) = 1.82$, $p = .092$), and job status, $F(4, 997) = 0.755$, $p = .555$.

Within senior active reservists, there was an unanticipated finding with regard to languages, $F(4, 813) = 8.258$, $p < .001$. French speaking reservists apparently report higher effort levels than German or Italian speakers. Thereby, the Grand Unit of incorporation does not account for this difference, $F(4, 813) = 1.627$, $p = .165$. Furthermore, the age- and rank-related differences apparent for military professionals can not be found either, $F(4, 813) = 1.627$, $p = .165$ and $F(3, 814) = 1.218$, $p = .302$.

Again, under the same reservation made with respect to work satisfaction, it may be suggested that the Swiss Armed Forces further study the particular case of younger military professionals. Beyond the changes in work orientation analyzed and discussed in chapter 6, analysis of descriptive findings with regard to self-reported work effort suggests a change is going on for military professionals over and above changes due to generations and hierarchies, because these changes do not appear for civilian employees and senior active reservists.

3.6.3.4 Army-life balance. Chapter 6 refers to army-life balance as an additional outcome. The effort to find a balance between work, private obligations, and family/spare time has gained enormous

importance in the last decades of the 20th century (T. D. Allen et al., 2000) and has considerably impacted the way people understand their work and careers (Schein, 1996).

For military professionals, the problem is particularly pronounced. Armed Forces demand control over them in an anachronistic way, but the family, due to social changes of the last decades, has increased its demands as well (M. W. Segal, 1986). How much the situation has changed, may be illustrated by the introduction of Shea's (1966) *Army Wife* (p. 1):

> Early in your new role as an Army wife you must understand that your husband's ‹duty› will come *first* – before you, before your children, before his parents, and before his personal desires and ambitions.

M. W. Segal (1986) described the conflict inherent in this tradition as «the military and the family as greedy institutions». Not only the above mentioned societal changes have accentuated such conflicts in recent decades. In addition, occupational trends in military service have been made responsible for the observation that military professionals and their partners no longer swallow what used to be normal back in 1966 (Burrell, Adams, Durand, & Castro, 2006, but see chapter 2.2.3.). In countries with increased deployments, the trend has accentuated even more (e. g., the Netherlands; Moelker & Van der Kloet, 2006).

As a reaction, 15 European nations have already limited the working hours of their military personnel, according to E.U. guidelines, by 2016. This practice is, however, in sharp contrast to the traditional identity of military professionals (Moskos, 1977a), and has notably been criticized by representatives of the military workforce, such as the German parliamentary commissioner for the Armed Forces («Wehrbeauftragter», Dewitz, 2016). The German newspaper *Die Zeit* stated matters directly: it's not family-friendly to get killed (Dausend, 2014). This conflict of an inherently traditional profession in a post-heroic society (Münkler, 2004) is characteristic to the military professional in our days (Kümmel, 2006; Collmer, 2006).

In Switzerland, despite the very low share of deployments (see chapter 2.2), working hours for most military professionals remain unlimited (V Mil Pers, 2016, art. 19). In line with this, the 2011 personal survey of the Swiss federal office of personnel (Federal Office of Personnel, 2013) found that work-life balance is massively lower among military professionals than in any other department or vocation across the Swiss public administration. Meanwhile, it is a goal of the Swiss Federal Administration's HR strategy to improve the reconciliation of work and family life (Federal Office of Personnel, 2015, section 3, p. 11). Thus, a certain need for action is indisputable.

The literature often addresses work-to-family conflicts (WFC), and also the reciprocal impact, instead of addressing the aim, that is balance and reconciliation. In their review, T. D. Allen et al. (2000) distinguish three kinds of *outcomes* of WFC: work related, non-work related, and stress related (p. 286). With regard to the first outcome, WFC decrease work satisfaction ($\hat{r} = -.24$) in a variety of $k = 38$ studies and $n = 12\,624$ participants. Furthermore, WFC decrease organizational commitment ($\hat{r} = -.23$, $k = 6$, $n = 1\,208$) and substantially increase turnover intention ($\hat{r} = .29$, $k = 10$, $n = 2\,836$). Of non-work outcomes, life-, marital-, and family satisfaction are all substantially harmed by WFC, with $\hat{r} = -.28, -.23, -.17$ found in $k = 18, 14, 7$ studies with a total of $n = 13\,110$ participants (double

Box 3.4: Survey participants reflecting army-life balance

«Handlungsbedarf besteht aus meiner Sicht in der Work-Life Balance. Meine Ehefrau hat eine gute Ausbildung und arbeitet 60% um im Berufsalltag zu bleiben und gefordert zu sein. Mit einem 2- und 4-jährigen Kind sind wir zur Zeit in einer strengen Lebensphase. In der Armee besteht kein oder sehr geringes Verständnis der Vorgesetzten (Armeeführung und ältere Generation) für Berufsmilitär die nicht jederzeit oder auch kurzfristig zur Verfügung stehen. Mit 50 Übernachtungen ausserhalb des Wohnortes, einer hohen Arbeitszeit bringe ich mitunter meine Familie an die Belastungsgrenze.» [no. 691]

«Die Freizeit ist sehr schlecht planbar durch kurzfristige Flugeinsätze.» [no. 1289]

counts included). Furthermore, stress outcomes include a broad set of negative outcomes, from general strain and stress up to somatic and physical symptoms, depression, and alcohol abuse. There are literally dozens of studies reporting such findings (T. D. Allen et al., 2000, see table 1 on p. 281). No doubt exists regarding the value organizations should attribute to the work-life balance of its members.

On the other hand, Byron's (2005) meta-analysis reports different *antecedents* of WFC. Beside such non-work factors such as number of children (only weakly relevant, $\hat{r} = .09, \mathrm{CI}_{95\%}[.07, .11]$) or spousal employment (no significant relevance, $\hat{r} = .01, \mathrm{CI}_{95\%}[-.02, .04]$), different work related factors are reported, several of them particularly relevant to the given setting. For instance, hours spent at work was found to have a strong impact $\hat{r} = .26$, based on $k = 22$ studies with $n = 9\,527$ participants. This is of particular relevance due to the working status of military professionals, and also of senior active reservists (see chapter 2.1.2). Moreover, job involvement increases WFC (see the discussion of Calling in chapter 6.2.2).

For the Swiss Armed Forces, it is of particular importance not only to include organizational obligations, but also those induced outside the organization. For both employees and reservists, these may be private or community obligations. In the case of senior active reservists in particular, there are professional obligations from the civil employer. Additionally, if one is interested in investigating the impact of the Swiss Armed Forces' membership on private life, it seems desirable to use a scale distinguishing the directions rather than a global measure of work-life-balance. To be precise, the term of *army-life balance* is used, focusing on the negative spillover of the army into private life, which may represent work in the regular sense for employees, but service in the case of senior active reservists. Thereby, *army* is intended to capture the same source for all subsamples irrespective of their contracted status.

Despite the broad discussion of work-life balance in German-speaking countries, Schuller and Rau (2013) state that their proposition is the first German scale acknowledging both the direction of spillover and non-organizational obligations. Based on 4 studies, they developed a scale for negative spillover between work and private life (B-AOF). The B-AOF distinguishes characteristics in different dimensions. Since the scale has only recently been developed, with parts of the attempted characteristics not yet validated, I investigate the scales in more detail. Based on their variable code,[16] I distinguish

16 Schuller and Rau (2013) write *A* for *Arbeit* (work), *O* for *Obligationen*, and *F* for *Freizeit* (spare time).

work or service duty within in the Armed Forces A, private obligations O, and free time F. Additionally, I introduce (civil) labor L, which comes into account for senior active reservists only.

First, Schuller and Rau (2013) managed to clearly separate the directions $A \longrightarrow F$ and $F \longrightarrow A$ in the factor solution. They reported the issue of low internal validity and test-retest-reliability for $F \longrightarrow A$. However, this is of no concern here, because I focus on the $A \longrightarrow F$ direction.

Second, the authors attempted to separate negative spillover by means of *strain* and *time*, or more precisely $A \overset{\text{strain}}{\longrightarrow} F$ and $A \overset{\text{time}}{\longrightarrow} F$, but only $F \overset{\text{time}}{\longrightarrow} A$, a classic distinction in the literature (e. g., Greenhaus & Beutell, 1985, pp. 77–81). Fit indices of the respective models were unambiguous in whether such a separation is superior to a simplified model (compare p. 113 and p. 114), but Cronbach's $\alpha = .86$ of the $F \overset{\text{total}}{\longrightarrow} A$ relation is superior to both $\alpha_{\text{strain}} = .80$ and $\alpha_{\text{time}} = .76$. Therefore, I combine the items of both relations; also because I am not interested in this distinction.

Third, Schuller and Rau (2013) sought to separate $A \longrightarrow O$ and $A, O \longrightarrow F$, but they did not succeed in doing so, arguing the common causal direction may obscure any differences (p. 117). However, I acknowledge the potential double burden to be of particular relevance in the given case. Thus, I include the $A, O \longrightarrow F$ items.

Fourth, and beyond Schuller and Rau's (2013) interpretation of the measurement flaw with regard to private obligations, the $A \longrightarrow O$ effect may likely not have been separable because it lacks concreteness. Private obligations may cover a wide range of family-intern responsibilities, such as shared child-care to volunteer activities in cultural and sport associations. Additionally, volunteer activities in favor of the community are of particular importance in Switzerland (Brändli-Traffelet, 2003). However, army obligations A and civil work obligations L seem to be clearly separable for senior active reservists. Thus, I intend to adapt the B-AOF measure in the case of senior active reservists by integrating their effort A in favor of the Swiss Armed Forces and their L in favor of the civil employer separately.

I am interested in spillover effects originating in the Swiss Armed Forces. Thus, in terms of Schuller and Rau (2013), I identify reservist's military duties with the originating A rather than with secondary O obligations. However, I include the reservist's labor obligations L as an additional strain. I keep the original items $A \longrightarrow O$ and $A, O \longrightarrow F$ for employees, but expand them into $A \longrightarrow O, L$ and $A, O, L \longrightarrow F$ for senior active reservists. In doing so, military professionals and civilian employees along with the original items, serve as a control group for the particular measure. Accordingly, in appendix A.4.5, Schuller and Rau's (2013) original items are those indicated for employees, and the adapted ones are those indicated for senior active reservists.

I expect the $A, O \longrightarrow F$ items to be again inseparable from the $A \longrightarrow F$ items; yet the $A, O, L \longrightarrow F$ items should form a factor independent of the $A \longrightarrow O, L$ items. EFA, based on PAF with *promax* rotation, supports this suggestion. For employees, only 1 factor is extracted according to the Kaiser (1960) criterion, the eigenvalue of the 2$^{\text{nd}}$ factor being only 0.901. Contrastingly, in the senior active reservists subsample, I extract 2 factors, with the 2$^{\text{nd}}$ eigenvalue being 1.135. Thereby, all but one item load properly according to Schuller and Rau's (2013) suggestions, the exception being $S^{\text{FORGET}}_{A \rightarrow O, L}$ with no loading being stronger than .165.

Removing $S_{A\rightarrow O}^{\text{FORGET}}$ in the case of the employees, and $S_{A\rightarrow O,\,L}^{\text{FORGET}}$ in case of non-employed individuals further sharpens the difference between the two different scales. For employees, the remaining 7 items load on 1 factor, explaining 64.227% in variance, and the 2nd eigenvalue drops to 0.743. For reservists, where the $S_{A,O\rightarrow F}$-items have been adapted into $S_{A,O,L\rightarrow F}$ items according to the previous description, $S_{A\rightarrow O,L}$- and $S_{A,O,L\rightarrow F}$-items clearly load on two separate factors, cumulatively explaining 66.532% of variance. The respective loadings of the items are good to excellent, with $\lambda_{S_{A\rightarrow O,\,L}^{\text{EXHAUS}}} = .454$, all other loadings $\lambda > .600$, and all cross-loadings below .160. In plain terms, the direct negative spillover from army to private obligations and civil labor can clearly be separated from the cumulated spillover of army, private obligations, and civil labor to free time; following Schuller and Rau (2013), but extending beyond their findings.

This finding only is an extra gain; the main interest lies in the negative spillover from the army on the individual's free time, contingent on eventual other strains, and thus subsumed as $A, O(, L) \longrightarrow F$. Consequently, the scale of interest – for the sake of clarity called army-life balance ALB – is defined as the reversed scale of $A, O \longrightarrow F$ for employees, and $A, O, L \longrightarrow F$ for reservists. This scale shows very good reliability, with Cronbach's $\alpha = .894$ across the different subsamples. The subsequent descriptives all refer to this ALB scale. Oneway ANOVA are performed, followed by post hoc-pairwise comparison, according to Bonferroni, when Levene's test is indicating homoscedasticity, but according to Dunnett (1980)'s C, if Levene's test is significant at $\alpha = .05$. The values in parentheses refer to respective averages on the $[1, 6]$-scale, 6 indicating the best possible army-life balance.

To start with, differences between the three subsamples exist beyond any doubt ($F(2, 2691) = 49.032$, $p < .001$), but Bonferroni comparisons show that only military professionals ($\mu = 3.73$) differ from civilian employees (4.19) and senior active reservists (4.20). Investigation of differences between categories reveals that apparently, working hour regulations make the difference. Specialist officers/NCOs (4.12) and contracted officers/NCOs (4.17) do not differ significantly ($p > .05$) from civilian employees, both categories having working hour regulations. In contrast, military professionals without working hour regulations, namely flying personnel (3.66), career officers (3.66), and career NCOs (3.52) differ significantly from civilians. Moreover, a small but significant ($p < .05$) difference between incorporated civilian employees (4.03) and those no longer incorporated (4.33) possibly indicates the strain of reservist service in addition to regular work.

Within military professionals, the difference between language groups is non-significant, $F(4, 939) = 0.567$, $p = .687$. Age dependency does not reveal the $\cup$-shaped relationship known from the literature (e. g., Grzywacz, Almeida, & McDonald, 2002), where the lowest balances are achieved in mid-career. Rather, ALB is highest for those below 31, and drops for all subsequent age groups, $F(3, 940) = 5.928$, $p < .001$. Possibly, job level confounds the distribution by age, because professionals in higher positions ($F(4, 939) = 7.439$, $p < .001$) and higher ranks ($F(5, 938) = 3.805$, $p = .002$) report significantly lower ALB. Over all, staff members report highest (4.06), junior, middle, and senior management average (3.60 to 3.67), and top management lowest (3.23) ALB values.

Within civilian employees, Italian speakers report lower army-life balance, $F(4,950) = 3.677$, $p = .006$. In contrast to professionals, age groups show the expected ∪-shape ($F(3,951) = 5.466$, $p < .001$), but with a shift towards older employees. Presumably, job status confounds the usual pattern again. Indeed, the higher an employee's position, the lower the reported ALB ($F(4,950) = 3.194$, $p = .013$), steadily decreasing from staff members to top management. In general, differences between subgroups of civilian employees are smaller than in the case of military professionals.

Within senior active reservists, the same language difference appears again, and this time significantly ($F(4,790) = 5.214$, $p < .001$): Italian speaking reservists clearly report lower army-life balance (3.90) than French (4.05) or German (4.29) speakers. This presumably follows from the longer commuting times, because the Italian speaking region is separated by the Alps from the rest of Switzerland.[17] For reservists, the ∪-shaped age relationship is again found, $F(3,791) = 3.312$, $p = .020$. Finally, there is one rank group clearly deviating from the other reservists ($F(3,791) = 8.627$, $p < .001$), with captains reporting significantly ($p < .001$) lower ALB (3.83) than SNCOs (4.32), lieutenants (4.36), or staff officers (4.22). Two facts may contribute to this finding: first, captains usually are at the bottom of the ∪, their years of service are the most demanding years regarding their civilian career and family planning. Second, a considerable percentage of captains are company commanders, one of the most demanding functions in reservist service. To close, no differences between the Grand Units were found, $F(4,790) = 2.119$, $p = .077$.

To conclude, I emphasize several critical points with regard to army-life balance. First, the most problematic groups can be found among military professionals, where those occupational groups without working hour regulations, and especially the group between 31 and 40 years, is most strongly exposed to army-family conflicts. However, the problem persists to a certain amount beyond the mid-career and is again very accentuated in top management. Among civilian employees, comparable patterns are found, but less pronounced. Finally, senior active reservists should not be disregarded. Although they are not employed by the Swiss Armed Forces, negative spillover from army-induced strains is likely to form a substantial problem for them, especially in the rank group of captains. This is however of particular importance, given that these reservists represent one of the focal groups for recruiting future military professionals.

3.6.4 Control variables

I select control variables for each model in chapters 4 to 6 separately, following recent recommendations (T. E. Becker, 2005; Spector & Brannick, 2011). This means some control variables merit additional explanation, because they may be measured in different styles (social desirability), or due to their idiosyncratic character with respect to the given sample (tenure, rank, branches, culture).

17 Indeed, commute times in repetition course differ significantly for senior active reservists, $F(2,648) = 6.188$, $p = .002$. German speakers invest $\mu = 9\text{h}\,25'$ per week in travel and French speakers $10\text{h}\,13'$, a non-significant difference ($p > .05$). Yet Italian speakers travel $11\text{h}\,41'$ per way, which is significantly ($p = .002$) more. For military professionals, the differences vanish, $F(2,565) = 0.123$, $p = .885$. Apparently, Italian speaking professionals move north to the alps, to reduce commute times ($10\text{h}\,05'$). Multiple journeys included.

3.6.4.1 Social desirability. An often applied, but controversial control variable in self-reported surveys is social desirability, defined as «the tendency for individuals to portray themselves in a generally favorable fashion» (Holden, 2010, p. 1628). Early developments have attempted to measure social desirability by unidimensional scales (e. g., Crowne & Marlowe, 1960), but Paulhus (1984) showed that social desirability may be separated into *self-deception*, directed at the self, and *impression management*, directed at others (p. 606). This measure was later refined (Paulhus, 1988) and is generally known as the Balanced Inventory of Desirable Responding (BIDR), a 40-item test battery.

Self-deception is functional to a certain degree, contributing to resilience, self-esteem, and confidence in the self, and preventing anxiety and depression, and only impression management contaminates self-reported measurements (Paulhus, 1986). Thus the author advises against controlling for self-deception, because this would suppress the measurement of constructs related to personality dimensions favoring self-deceptions. In contrast, impression management can and should be controlled for (ibid.).

Winkler, Kroh, and Spiess (2006) developed a German short-scale based on the BIDR, with 3 items for each sub-dimension. Of these, according to Paulhus (1986), I only use the three impression management items, one example being $SD\text{-}I_{\text{CHANGE}}$ «I have received too much change from a salesperson without telling him or her» (reverse scored; translations and other items in appendix A.5.1). For the 3-item scale, internal consistency is rather low, with Cronbach's $\alpha = .54$. However, the value is consistent with Winkler et al. (2006), who reported $\alpha = .54$ and considered this to be just acceptable for a scale with only a few items (p. 8). Low consistencies seem characteristic for social desirability measures in general. For instance, Musch, Brockhaus, and Bröder (2002) reported $\alpha = .65, .67, .69$ for impression management in three (German) studies, although their scale involved 10 items from the BIDR. Given that α is known to increase with the number of items for constant inter-item correlations (Cortina, 1993), Musch et al.'s (2002) findings may equally be regarded as of low internal consistency, similar to Winkler et al.'s (2006) scale, and the finding in the present study. Thus I consider the scale acceptable.

Reported values on the $[1, 6]$-scale, where 6 indicates the most biased answering behavior, are high across all samples. Oneway ANOVA reveals significant differences within subsamples, $F(2, 2773) = 44.332$, $p < .001$. *Post hoc* pairwise Bonferroni comparisons indicate a substantially lower tendency towards social desirability responding among senior active reservists (4.70) than among civilian employees (5.04) or military professionals (4.99). This finding suggests the tendency to answer in a socially desirable manner is not only crucial to the researcher, but also of relevance for the organization. The lower $SD\text{-}I$-value may underscore the oft-mentioned relevance of senior active reservists to the Swiss Armed Forces as an inconvenient but important voice (e.g, Bigler, 2004). Yet, even the Chief of the Armed Forces, LTG A. Blattmann, explicitly recognizes this characteristic of the reservist is sometimes uncomfortable to hear, but is an effective (democratic) control of the armed forces (Blattmann, 2013). Thus, the finding supports the cliché of senior active reservists speaking out more frankly.

Within military professionals, further analysis reveals that German speakers show the lowest $SD\text{-}I$ values, and Italian speakers highest, $F(4, 974) = 7.733$, $p < .001$. The difference between French and

Italian speakers is insignificant ($p > .05$) and therefore, cultural differences (see the paragraph on *culture* below) may account for this. In addition, younger professionals report significantly lower *SD-I* levels, $F(3, 975) = 8.419$, $p < .001$. This is likely to be an indicator of generational change rather than one induced by hierarchies, because no differences due to job levels ($F(4, 974) = 0.147$, $p = .964$) or rank groups ($F(5, 973) = 0.405$, $p = .846$) were found.

Within civilian employees, the same pattern appears between language groups, $F(4, 979) = 10.298$, $p < .001$. The age tendency is less pronounced than among military professionals ($F(3, 980) = 4$, $p = .008$), possibly obscured by a marginal tendency of senior job holders to have higher *SD-I* levels, $F(4, 979) = 2.015$, $p = .090$. However, none of the pairwise differences is significant ($p > .05$), and rank differences do not corroborate the tendency either, $F(6, 977) = 1.550$, $p = .159$.

Within senior active reservists, the same language pattern appears for the third time ($F(4, 808) = 5.95$, $p < .001$). This is reflected by differences between Grand Units, were the two monolingual German brigades report consistently lower averages, $F(4, 808) = 4.272$, $p = .002$. In contrast, no differences are found with respect to age ($F(3, 809) = 1.13$, $p = .336$) or rank ($F(3, 809) = 1.042$, $p = .373$), countering the above suggested generational impact.

I suggest a general interpretation for these differences. Impression management can be seen as an active behavior, namely the «process by which individuals attempt to control the impressions others form of them» (Leary & Kowalski, 1990, p. 34). As such, an individual's tendency to engage in impression management has been found to influence their voice behavior (Fuller, Barnett, Hester, Relyea, & Frey, 2007). Thus, *cum grano salis*, the above-mentioned groups, with social desirability below average, may engage more offensively in voice behavior, addressing potential weaknesses in the organization. In this interpretation, the grain of salt lies in a potential jingle fallacy (Kelley, 1927), because impression management as a sub-scale of social desirability does not necessarily correspond to impression management as a technique of favorable self-representation. Yet the above findings, especially of senior active reservists to more likely voice up than employees, tend to support such an equalization. However, testing such propositions must be delegated to further research, for it is beyond the scope of the present study.

3.6.4.2 Tenure. McEnrue (1988, p. 178) defined organizational tenure as «length of time with organization». Although related to other organizational variables such as job tenure, group tenure, or hierarchical level, it can be clearly separated from these concepts (Ng & Feldman, 2010). In their meta-study, Ng and Feldman found that the concept is generally positively related with desirable outcomes such as-in role performance ($r = .11, \mathrm{CI}_{95\%}[.08, .12]$ in $k = 222$ studies with $n = 70\,304$ participants) or organizational citizenship behavior ($r = .08, \mathrm{CI}_{95\%}[.04, .13]$, $k = 42$, $n = 13\,606$). On the other hand, it clearly has its downsides, such as worse safety behavior ($r = -.18, \mathrm{CI}_{95\%}[-.26, -.11]$, $k = 27$, $n = 8\,642$) and some increased counterproductive workplace behaviors, such as workplace aggression and non-sickness absence (table 1 on p. 1235).

In the Swiss Armed Forces, tenure is more ambiguous than in other organizations. Given the active reserve system (chapter 2.1.2.3), employees often served prior to hiring. In their thinking, their first day of service may act as a point of reference to organizational tenure.[18] The average employment tenure $TENURE_{\text{Emp}}$ is 15.63 (S. D. 10.16) years for the $n = 2\,081$ employees. However, taking the first day of military basic training as a point of reference, which is possible for all but 151 civilian employees who never were active in service, service tenure $TENURE_{\text{Ser}}$ amounts to 19.45 (S. D. 11.21) years.

Employee tenure is longer than service tenure in 38 cases, with two outliers ($\Delta TENURE = -17.35$ and -13.77 years), and the other 36 cases in the range of $[-6.69, -1.01]$. Smaller differences were not accounted for, given that service tenure was measured with 1-year precision only. Presumably, the two outliers are late incorporations due to their employee function. For the other 36 employees, it is plausible that they have done their vocational education at the Swiss Armed Forces before entering basic training. Over all, the mean of $\Delta TENURE$ is 7.12 years, the median 4.65 years, and the maximum value in the sample is 43.48 years.

Due to attrition (see chapter 3.5.4) or refusal to answer, $TENURE_{\text{Ser}}$ was missing for 46 senior active reservists. However, given that AGE predicts 96.2% of $TENURE_{\text{Ser}}$, missing data were imputed using linear regression estimations, with $TENURE_{\text{Ser}} = 0.985 \cdot AGE - 19.972$. The same imputation procedure was applied to the 112 military professionals with missing data ($TENURE_{\text{Ser}} = 0.995 \cdot AGE - 20.348$) and to the 70 civilian employees ($TENURE_{\text{Ser}} = 0.997 \cdot AGE - 20.534$, the 2 outliers were excluded for the estimation of the coefficients). Based on organizational records, data about organizational tenure $TENURE_{\text{Emp}}$ was complete.

For senior active reservists, obviously only $TENURE_{\text{Ser}}$ may come into account. Similarly, for civilian employees who never had an active reserve status, only $TENURE_{\text{Emp}}$ is applicable. But for most categories, it seems plausible that depending on the context, different definitions of tenure are relevant. For military professionals and also for civilian employees with active or former reserve status, its seems plausible that $TENURE_{\text{Emp}}$ is more relevant for economic exchange with the organization, but $TENURE_{\text{Ser}}$ when it comes to socio-emotional or ideological exchange (Thompson & Bunderson, 2003, see chapter 4.2.5). To test these suggestions, two auxiliary variables labelled $TENURE_{\text{Max}}$ and $TENURE_{\text{Min}}$ are construed.

For all three subsamples, $TENURE_{\text{Max}}$ is the longer of both tenures – this tenure is assumed to be relevant for socio-emotional and ideological contexts. If there is just one tenure measure available, $TENURE_{\text{Max}}$ equals this measure. $TENURE_{\text{Min}}$ is the shorter of both, unless $\Delta TENURE < 0$, where it is also the longer. With this definition, $TENURE_{\text{Min}}$ is always $TENURE_{\text{Emp}}$ if available and $TENURE_{\text{Ser}}$ otherwise. This tenure is assumed to be relevant in economic contexts.

Regression analysis reveals that these assumptions effectively hold true. For the level of transactional promised inducements of the psychological contract, the impact of $TENURE_{\text{Max}}$ is insignificant ($p = .818$), but the effect of $TENURE_{\text{Min}}$ is strongly significant ($\beta = -0.056$, $p = .006$). In contrast, the ef-

18 I wish to thank Ed Lazear for this input.

Table 3.17: Descriptive statistics on tenure, applicable for all subsamples. Number of cases are indicated with respect to total (% share within total in parentheses).

		Subsample			Total
		Military professionals	Civilian employees	Active reserve	
Employee Tenure $TENURE_{\text{Emp}}$	less than 1 year	39 (3.8%)	21 (2.0%)		60 (2.9%)
	1 - 3 years	85 (8.2%)	109 (10.4%)		194 (9.3%)
	3 - 5 years	40 (3.9%)	79 (7.5%)		119 (5.7%)
	5 - 10 years	142 (13.8%)	204 (19.4%)		346 (16.6%)
	10 - 30 years	669 (64.8%)	488 (46.5%)		1 157 (55.6%)
	more than 30 years	57 (5.5%)	148 (14.1%)		205 (9.9%)
Service Tenure $TENURE_{\text{Ser}}$	no service tenure	0 (0.0%)	123 (11.7%)	0 (0.0%)	123 (4.2%)
	1 - 3 years	43 (4.2%)	0 (0.0%)	55 (6.5%)	98 (3.3%)
	3 - 5 years	33 (3.2%)	5 (0.5%)	96 (11.3%)	134 (4.6%)
	5 - 10 years	106 (10.3%)	20 (1.9%)	238 (28.1%)	364 (12.4%)
	10 - 30 years	572 (55.4%)	411 (39.2%)	394 (46.5%)	1 377 (47.0%)
	more than 30 years	166 (16.1%)	383 (36.5%)	18 (2.1%)	567 (19.4%)
	no information	112 (10.9%)	107 (10.2%)	46 (5.4%)	265 (9.1%)

fect of $TENURE_{\text{Max}}$ on relational promised inducements is strongly significant ($\beta = 0.063$, $p = .002$), but not so for $TENURE_{\text{Min}}$ ($p = .470$). For ideational promised inducements, $TENURE_{\text{Max}}$ has a marginally significant ($\beta = .037$, $p = .078$) and $TENURE_{\text{Min}}$ again a nonsignificant ($= .935$) effect.

For continuance organizational commitment, both $TENURE_{\text{Max}}$ and $TENURE_{\text{Min}}$ have a highly significant impact ($\beta = .131$, $p < .001$ and $\beta = .121$, $p < .001$) with non-significant ($p > .1$) differences in effect size and similarly for affective commitment ($\beta = .069$, $p = .001$ and $\beta = .087$, $p < .001$), but for normative commitment, differences were again clear-cut and as expected ($\beta = -.104$, $p < .001$ for $TENURE_{\text{Max}}$ and $p = .629$ for $TENURE_{\text{Min}}$).[19]

With regard to work orientations (see chapter 6), the situation is somewhat different. In this case, preliminary regression analysis demonstrates that it is not $TENURE_{\text{Max}}$, but always $TENURE_{\text{Min}}$ affecting work orientations, if at all. As it will be shown in chapter 6.4.2, relationships between work orientation and promised inducements of the psychological contract are weak and intertwined. Thus, both economic and socio-emotional reasoning is related to an individual's work orientation and therefore, the above argument in favor of $TENURE_{\text{Max}}$ does not hold true. Rather, one may realize that someone's work orientation is changing, as he becomes a military or civilian employee. Therefore, his experience as an employee rather than as a prior active reservist will likely determine his work orientation, explaining the revealed dominance of $TENURE_{\text{Min}}$ in this case.

To summarize, $TENURE_{\text{Min}}$ is relevant regarding the transactional contract, continuance commitment, and work orientations. In contrast, $TENURE_{\text{Max}}$ is applicable for relational and ideational

19 All regressions controlled for employability *EMPLO* and highest education *EDUC*.

contracts as well as affective and normative commitment. Therefore, throughout the dissertation, whenever tenure is accounted for, the cognitively relevant version of tenure is considered.

3.6.4.3 Rank. Every active reservist and military professional holds a military rank, which is made apparent by the respective insignia on his uniform (Insignia of the Swiss Armed Forces, 2008). In contrast, civilian employees have a rank only if they are incorporated as reservists (see chapter 2.1.2.2). However, this rank is formally irrelevant to his employee status, although some civilian positions require an adequate rank. Further, a civilian's rank may likely be relevant in an informal manner, raising the individual's credibility within the organizational culture. In addition, given the fact that civilian employees effectuate their duty conjointly with military professionals and senior active reservists, I expect social capital effects.[20] This presents yet another research gap, but again, one beyond the scope of this study. Instead, only descriptives are provided to reveal the relationship between $RANK$ and wage bracket LK.

Linear regression within the sample of $n_1 = 1\,032$ military professionals and $n_2 = 1\,049$ civilian employees reveals the assumed differences. Among military professionals, rank explains $R^2 = 66.7\%$ of variance in LK, $F(1\,030, 1) = 2\,067.128$, $p < .001$. One additional rank explains an increase of 0.661 in LK. In contrast, one additional rank of a civilian employee only accounts for an increase of 0.174 in LK. Nonetheless, this does explain $R^2 = 18.5\%$ in variance ($F(1\,047, 1) = 238.004$, $p < .001$), in line with the mentioned requirements for certain functions and suggested cultural and social capital effects.

Table 3.18: Descriptive statistics of ranks, applicable for all subsamples. Number of cases are indicated with respect to total (% share within total in parentheses).

		Subsample			Total
		Military professionals	Civilian employees	Active reserve	
Rank classes	None	0 (0.0%)	125 (11.9%)	0 (0.0%)	125 (4.3%)
	Private	0 (0.0%)	231 (22.0%)	0 (0.0%)	231 (7.9%)
	NCO	58 (5.6%)	109 (10.4%)	0 (0.0%)	167 (5.7%)
	SNCO	502 (48.6%)	138 (13.2%)	117 (13.8%)	757 (25.9%)
	Officer	472 (45.7%)	446 (42.5%)	730 (86.2%)	1648 (56.3%)
General Staff[a]	Not in General Staff	882 (85.5%)	1027 (97.9%)	814 (96.1%)	2723 (93.0%)
	General Staff Officer	150 (14.5%)	22 (2.1%)	33 (3.9%)	205 (7.0%)

[a] General staff officers are included in the officer row above. However, due to extraordinarily demanding selection and formation, they may serve as indicating excellence in the setting of the Swiss Armed Forces and serve as a talent pool for military and civilian top management.

I have identified different ways to operationalize ranks. The variable $RANK$ orders the ranks in the most detailed manner conceivable. This reflects two particularities for officer ranks.

20 The income effect of military ranks in the private sector has been empirically demonstrated by Jann (2003).

Any officer rank from 2LT to COL may be granted on a honorary base (MDV, 2014, art. 51–53). In Swiss Armed Forces terms, these are called *specialist officers* («Fachoffiziere», MG, 2016, Art. 104). This particular status is made apparent both in the title, preceding the name, for instance *Fachof (Maj) Sutter* instead of *Maj Sutter*, and on the uniform (Insignia of the Swiss Armed Forces, 2008, subsection 7.1). In the variable $RANK$, I have ordered each specialist officer rank just *below* the corresponding standard rank.

Furthermore, officers from MAJ to COL (and, in exceptional cases, also CPT), may be assigned to the *general staff officer's corps*, if they pass a stringent selection procedure and intense and selective training, spread out over several years (MDV, 2014, annex 4, section 5). This, too, appears both in the title, such as *Maj i Gst Sutter*, and on the uniform (Insignia of the Swiss Armed Forces, 2008, subsection 3.2.3). In the variable $RANK$, I have ordered general staff ranks just *above* the respective standard rank.

Now, instead of distinguishing specialist officers and general staff officers within the variable $RANK$, only standard ranks may be ordered within the variable, and two dummy variables δ_{Fachof} and $\delta_{\text{Gst Of}}$ reflect the particularities instead. I denote this reduced rank variable as $SIMPLERANK$.

Yet another distinction becomes apparent with regard to the distinction between NCOs and officers. Even the most senior SNCO, such as the assistant to the Chief of the Armed Forces, is subordinated by rank (CWO) to the lowest officer rank (2LT), although the warrant officer largely surpasses the lieutenant in terms of experience and responsibility. This historically founded divergence between NCOs and officers can be found in most western armies, such as in the U. S., U. K., Germany, France, Italy, or Austria. Thus, to reflect seniority, it is helpful to introduce an dummy variable δ_{Officer}, coded 1 if the individual is an officer, and coded 0 otherwise. This dummy, however, may be used either in combination with the detailed $RANK$ or the reduced $SIMPLERANK$ variable.

Multiple linear regression of the wage bracket LK on $SIMPLERANK$, δ_{Officer}, $\delta_{\text{Gst Of}}$, and δ_{Fachof} reveals how the rank structure is related to seniority within the organization. The resulting regression models can be found in table 3.19. Here, δ_{Fachof} was omitted for military professionals, since only one FBO within the sample holds the rank of a specialist officer. In these models, variance inflation factors VIF between 5.3 and 6.9 are found for the combination of $SIMPLERANK$ and δ_{Officer}, which was expected, but acceptable. Such collinearities only inflate the error margins of the variables concerned, but do not corrupt the model as a whole.

The models in table 3.19 contain some noteworthy findings. First, $SIMPLERANK$ explains a lot less variance in LK than $RANK$ does. However, the loss of information is more than compensated for when introducing the different dummies proposed in the above paragraphs. Yet, closer investigation of each subsample reveals further particularities.

With regard to military professionals, the impact of the officer dummy is considerable, explaining an additional $\Delta R^2 = 14.7\%$ of variance in wage brackets. In contrast, the general staff dummy only explains an additional 1.3%, but with a high significance ($p < .001$). The small share in variance explained is unsurprising, given that only 14.5% of military professionals are affiliated to the general staff corps. However, the sheer impact of affiliation is impressive: being a general staff officer accounts for additional

Table 3.19: Hierarchical regression[a] of wage brackets LK on $SIMPLERANK$ and three rank-related dummies, indicating officers, affiliation to the general staff, and specialist officer status. Unstandardized B coefficients are tabled.

	Military professionals			**Civilian employees**			
Step→	1	2	3	1	2	3	4
constant	5.305***	−5.530***	−4.510***	18.711***	19.550***	19.620***	19.654***
$SIMPLERANK$	1.080***	2.167***	2.072***	.200***	−0.039	−0.054	−0.062
δ_{officer}		−9.872***	−9.825***		3.806***	3.809***	4.096***
$\delta_{\text{Gst Of}}$			2.054***			4.168***	3.994***
δ_{Fachof}							−.927*
R^2	.628	.774	.786	.145	.182	.205	.209
ΔR^2	.628	.147	.013	.145	.037	.024	.004
F_{inc}	1 736.253***	669.399***	60.976***	177.141***	47.232***	31.074***	5.005*

2.05 (S. E. 0.26) wage brackets, resulting in an income increase of about 12 400 CHF/year.[21] Age could account for an omitted variable bias, because affiliation to the general staff corps is not possible early in one's career. However, including age as an additional variable still allows for a highly significant ($p < .001$) impact of the general staff affiliation, with $B = 1.97$ (S. E. 0.24). In reality, the economic advantage is likely to be even higher, because senior staff officers ($LK \geq 31$) have to be former general staff officers (V Mil Pers, 2016, Art. 25, 1f).

With regard to civilian employees, impacts of rank-related dummies are substantially lower. Integration of the officer dummy makes the effect of rank on wage brackets insignificant. To put it plainly, the only thing that matters for civilian employees employees regarding their wage bracket is whether they are officers or not; the effective rank seems irrelevant in this regard. Introduction of the general staff- and specialist officer dummies further reveals that the *type* of officer is highly relevant. Being a specialist officer increases wage brackets by 3.17, being a regular officer leads to an increase of 4.10 wage brackets, and being a general staff officer statistically increases the wage class by as much as 8.09.

To compare the incentives of two officers, one a civilian employee, and the other a military professional, to aspire for the general staff corps, the civilian's wage impact has to be calculated with the base line of a regular officer. In this case, the net effect is 3.99 wage brackets. With the average wage bracket of 26.55 for general staff officers among civilian employees, the benefit may be estimated to be 25 300 CHF/year. Thus, in terms of wage effects, affiliation to the general staff corps is about twice as valuable to civilian employees as to military professionals.

Overall, there are substantial differences in how rank is operationalized. The sample-specific findings above notwithstanding, the simultaneous inclusion of 4 rank-related variables seems to be rather intricate and should be avoided. As a consequence for the research in the following chapters,

21 For this estimation, I took the average wage bracket of general staff officers, of 27.33 for military professionals, and calculated the difference of the wage bracket 27 to the wage bracket 25, resulting in 15 451 CHF/year. As a rule of thumb, I took 80% of this upper bound which is reached only by long tenured professionals.

a workable compromise has to be defined. δ_{Fachof} and $\delta_{\text{Gst Of}}$ are both reflected in the more detailed *RANK* measure. Thus, *RANK* is a straightforward way to control for seniority, if one is not interested in particular findings for general staff officers or specialist officer. However, δ_{Officer} is relevant both in combination with *RANK* and *SIMPLERANK*. Thus, the standard will be that simultaneously *RANK* and δ_{Officer} are introduced as control variables to control for seniority.

3.6.4.4 Branches. The armed forces include different systems of subcultures (Vom Hagen & Tomforde, 2012). Besides rank-induced heterogeneities, cultural differences are mostly found between different services, usually Land Forces, the Air Force, and the Navy; at a more precise level, branches account for differences (p. 290). In the Swiss Armed Forces, due to the bottom-up evolution of its military traditions, the branches are of particular importance to military culture (Schwarz & Szvircsev Tresch, 2010). Szvircsev Tresch (2012, p. 10) reports 75% of $n = 709$ recruits are proud to be a member of their branch. Technically, an individual's assignment to a branch can alter during his career. However, the branch was self-reported in my survey, and I assume that in conflicting situations, individuals report the branch most relevant to them.

According to Swiss regulatory law (AO, 2010, Art. 7), there are 13 branches (*Waffengattungen*) of the armed forces and 6 specialist services. To reduce the number of entities, which is suitable for the purpose of the contingency analysis applied in chapter 6, I lump these into 4 branch categories, coining them *command, control, and intelligence* (C2I), *combat* (C), *combat support* (CS), and *combat service support* (CSS). Table 3.20 provides the complete classification scheme. This scheme partly deviates from the official one (Taktische Führung XXI, 2004, clause 136), where specialist services such as the General Staff, Intelligence, and Red Cross Service form a separate branch category. Also, Artillery is considered combat support (clause 169–179). However, based on cultural reasoning, I classify the specialist services, were separable, as either C2I or CSS. In addition, I classify Artillery as combat branch, because training units of Artillery and Armor have been unified in 2007, presumably leading to a merger in culture. Additionally, Artillery is internationally often classified as combat branch.

All military professionals and senior active reservists were asked to indicate their branch. Civilian employees were only asked to do so if they still were incorporated. Thus, the according n is reduced. Apart from the distribution shown in table 3.20, sample-specific details are apparent, reflecting some «branch pride» (German: *Waffenstolz*). Of the 18 participating senior staff officers, as many as 27.8% reported one of the traditional branches such as Infantry or Logistics, rather than *Senior Staff Officer* or *Specialist branches*, the official branch for this rank group. Furthermore, only 10 out of 21 general staff officers among civilian employees and only 37 out of 143 general staff officers among military professionals reported *general staff* as their branch, although this is formally correct. Insofar as self-reported branches may be considered as a sign of identification, a majority of general staff officers and a respectable minority of senior staff officers seems to identify with their original branch rather than their status.

Table 3.20: Classification of military branches and specialist services into branch categories. Senior active reservists are mainly sampled from four infantry brigades (see chapter 3.2) and thus not included in this table.

Branch category/Branch	Military professionals			Civilian employees		
	count	% in cat.	% of tot.	count	% in cat.	% of tot.
Command, control, and intelligence (C2I)	*113*	*100.0%*	*13.7%*	*48*	*100.0%*	*13.8%*
Senior staff officers[a]	11	9.7%	1.3%	0	0.0%	0.0%
General Staff officers	34	30.1%	4.1%	10	20.8%	2.9%
Military intelligence service	3	2.7%	0.4%	0	0.0%	0.0%
Signal corps / command support corps	65	57.5%	7.9%	38	79.2%	10.9%
Combat (C)	*280*	*100.0%*	*33.9%*	*91*	*100.0%*	*26.1%*
Infantry	172	61.4%	20.8%	50	54.9%	14.4%
Armor	71	25.4%	8.6%	28	30.8%	8.0%
Artillery	37	13.2%	4.5%	13	14.3%	3.7%
Combat support (CS)	*244*	*100.0%*	*29.5%*	*109*	*100.0%*	*31.3%*
Air force	107	43.9%	13.0%	87	79.8%	25.0%
Air defense corps	42	17.2%	5.1%	10	9.2%	2.9%
Engineer corps	26	10.7%	3.1%	6	5.5%	1.7%
Military security	59	24.2%	7.1%	2	1.8%	0.6%
NBC defense corps	10	4.1%	1.2%	4	3.7%	1.1%
Combat service support (CSS)	*189*	*100.0%*	*22.9%*	*100*	*100.0%*	*28.7%*
Rescue corps	25	13.2%	3.0%	6	6.0%	1.7%
Logistic corps	119	63.0%	14.4%	45	45.0%	12.9%
Medical corps	26	13.8%	3.1%	18	18.0%	5.2%
Other specialist services	19	10.1%	2.3%	31	31.0%	8.9%

[a] Not officially a branch according to AO (2010). However, they are often listed in the same context, for instance in regulations such as Insignia of the Swiss Armed Forces (2008). Thus, it has been provided as an additional category.

Beyond branches and branch categories, participants may also be classified according to the subsample they belong to (see chapter 2.1.1), or according to their occupational category. Chapter 3.6.1 presents this distinction, including information about attrition during the survey.

3.6.4.5 Culture. Switzerland has 4 official languages, of which German, French, and Italian are legally equivalent, and Romansh is an official language under some restrictions (BV, 2016, Art. 70,1). In practice, the public administration and, to an even stronger extent the Swiss Armed Forces, are dominated by the German language (Kreis et al., 2008, p. 31). Effects of this organizational multilingualism has been studied within the framework of the national research program no. 56 «Language Diversity and Linguistic Competence in Switzerland», investigating communication in a multilingual brigade (p. 14).

Beyond organizational and social aspects, the heterogeneous Swiss language situation is likely to cause variation in attitudinal dimensions (Ronen & Shenkar, 1985, p. 441). For instance, surveys of the International Social Survey Program (ISSP 1997 and 2005) reveal that within Switzerland, German

speakers are much more likely to agree with the statement «I would enjoy a paid job even if I did not need the money» than non-German speaking Swiss (Brügger, Lalive, & Zweimüller, 2009, p. 8). Such cultural differences are also manifest in voting behavior on popular initiatives (BV, 2016, Art. 139), where longer vacations, less working hours, or lowered retirement age have generally been much more forcefully rejected in German-speaking regions than in other ones (Brügger et al., 2009, p. 9).

Insights of the GLOBE study (House, Hanges, Javidan, Dorfman, & Gupta, 2004) tempt to aggregate Italian and French speaking regions into one common *Latin* region. House et al. (2004) have accounted for what they called the «French and German subcultures in Switzerland» (p. 97). In this study, the French speaking part of Switzerland is usually assigned to the cluster of *Latin Europe countries*, along with France and Italy.[22] Despite the fact that I deliberately oversampled Italian speaking reservists (see chapter 3.2), they still make up only 7.9% of the final sample (table 3.12). Thus, it seems reasonable to represent Italian and French speakers by one common cultural dummy δ_{latin}, coded 1 for individuals of Italian or French mother tongue, and 0 else.

3.7 Imputation

Tabachnick and Fidell (2013, p. 93) suggest missing data may be negligible as long as only a few data points are missing, with a proposed threshold of 5%. However, sound reasons speak against the common application of deletion procedures. Contrary to listwise or pairwise deletion, advanced imputation techniques such as multiple imputation (MI) or maximum likelihood (ML) are unbiased both in the case of data missing completely at random (MCAR) and missing at random (MAR; Newman, 2009). Such imputation techniques generally outperform deletion procedures in estimating accurate estimates (Newman, 2009; Graham, Cumsille, & Elek-Fisk, 2003). In addition, inferiority of deletion procedures is particularly pronounced with relatively complete data (Newman, 2003, p. 351).

Further, standard procedure of listwise deletion basically implies throwing data away. In contrast, Newman (2009) suggested «using all available data» as a fundamental principle of missing data analysis (p. 11). To choose between those more sophisticated handling procedures, there are indications that MI is more suitable than ML in the case of non-normal data (Allison, 2001, p. 27, 39). Hence, I choose MI to deal with missing data throughout the dissertation. Specifications, such as included predictors, are explained in the respective chapters. Technically, appropriate imputation method was set to *fully conditional specification* by SPSS 23.0.0.0, resulting in the automatic use of linear regressions for any imputation performed. In any case, I performed five iterative imputation steps.

22 E. g., in terms of leadership values (p. 713) or societal assertiveness (p. 424).

3.8 Exploratory Factor Analysis

Applying exploratory factor analysis (EFA) requires several methodological decisions. Namely, one has to chose the appropriate *extraction*, whether the extraction is based on the *covariance or* the *correlation* matrix, how the *number* of factors is determined, and the suitable *rotation* technique. These four issues are discussed in the next four paragraphs.

Although it is still a common practice[23] to apply Principal Component Analysis (PCA; Bandalos & Boehm-Kaufman, 2009) to *extract* separable factors, Common Factor Analysis is the suitable method to isolate latent constructs in reflective models (J. M. Conway & Huffcutt, 2003; Widaman, 1993; Edwards & Bagozzi, 2000). In SPSS, the appropriate procedure is called Principal Axis Factoring (PAF) and therefore, this term is used here instead of Common Factor Analysis, to prevent confusion with Confirmatory Factor Analysis (CFA). PAF is often criticized for not providing directly interpretable factor loadings (Bandalos & Boehm-Kaufman, 2009), but this deficiency is uncritical, given that EFA is well suited for use as a preliminary method to CFA (Gorsuch, 1997), the latter yielding factor scores suitable to substantial interpretation. Therefore, *Principal Axis Factoring (PAF)* is the method of choice for all EFA performed in the present study.

To determine the *number* of factors, the Kaiser rule (Kaiser, 1960) is among the most used both in psychology and management journals (Fabrigar, Wegener, MacCallum, & Strahan, 1999; Hayton, Allen, & Scarpello, 2004). The Kaiser rule states that all extracted factors with an eigenvalue greater than 1 have to be retained. Despite its clarity, the Kaiser rule leads to an overestimation of the number of factors (Cliff, 1988). More precisely, the Kaiser rule does not provide an exact criterion, but rather an upper bound for the number of factors to be extracted (Bandalos & Boehm-Kaufman, 2009). Alternatively, other techniques such as visual inspection of the scree plot (Cattell, 1966), interpretability of the solution through multiple application, or a combination of different methods may be performed instead (J. M. Conway & Huffcutt, 2003). Consequently, I use the number of solutions according to the Kaiser rule as an upper threshold to test *multiple solutions*.

To decide whether an EFA based on *covariance or on correlation* is appropriate, related-samples Friedman's two-way ANOVA by ranks may be performed (Friedman, 1937). This is a non-parametric way to test whether k variables have equal distributions among the n data points. For $n > 15$ or $k > 4$, the test statistic can be approximated by the χ^2 statistic. This condition is fulfilled throughout the dissertation. Wherever EFA is applied, the corresponding tests show that distributions cannot be assumed to be equal. For example in chapter 4, with $k = 15$ variables $P_{t,r,i}$ and $n = 2\,928$ data points I found $\chi^2(14) = 6\,714.301$, $p < .001$, that is the null hypothesis of equal distributions is rejected. Consequently, EFA will be performed based on *correlations*.

Rotation techniques are widely appreciated to yield easier interpretable solutions (Bandalos & Boehm-Kaufman, 2009). Basically, there are orthogonal and oblique rotations, with orthogonal forcing

23 For example, PCA is the default option in SPSS. However, the direction of an eventual underlying causal relationship is unclear.

the rotated factors to be uncorrelated, but oblique rotation allowing factors to correlate. Although orthogonal rotation tends to be more common[24] in publications (J. M. Conway & Huffcutt, 2003), it seems reasonable to use oblique rotations, because they do not *force* factors to correlate, but only *allow* them to do so (Fabrigar et al., 1999). Thus, if there was an orthogonal solution, it would appear as such even when oblique rotation is used. The most common oblique methods are *oblimin* and *promax* (J. M. Conway & Huffcutt, 2003). Studies suggest that the differences are rather small (Gorsuch, 1983/2015, chapter 4.9.3), but *promax* is conceptually simpler (K. Lee & Ashton, 2007, p. 435). Consequently, I use *promax* with default $\kappa = 4$.

3.9 Summary

The methods in chapter 3 provided insights with regard to the procedure, population, sample, and measurements. These findings are relevant not only for the study to follow in chapters 4 to 6, but also with regard to further research in the Swiss Armed Forces and similar samples. Thus, the main insights are reviewed in the next paragraphs.

3.9.1 Strength and limitations

The present study profits from the general advantages of a military sample: size, homogeneity, and transparency. Military professionals, civilian employees, and senior active reservists each count between 800 and more than 1 000 for all relevant measures. Despite cultural differences described previously in chapter 3.6.4, participants all stem from one organization in one small country. Differences within and between each subsample can transparently be taken into account, using comprehensive organizational measures such as wage brackets or ranks.

The inclusion of civilian employees further reduces issues of generalizability. Civilian employees often perform tasks similar to those in the private sector. Thus, both employer and employees are exposed to labor market restrictions. If findings within military professionals can be paralleled within civilian employees, and organizational causes are unlikely to be determining, then practitioners may more credibly generalize these findings to the non-military public sector or the private sector.

The inclusion of senior active reservists allows for a testing of assumptions that were often made about differences between conscription and all-volunteer forces, but which usually could not be investigated in one common organization. Beyond this, findings may be adapted to the volunteer sector, because senior active reservists can be considered as volunteers, given that they have opted for promotion usually free of economic constraints. Given that senior active reservists fulfill tasks within the same organization, ones which are sometimes even identical to those of military professionals, comparisons

24 Yet, with regard to SPSS standard settings, another possible default bias of unknown causal relationship.

between these subsamples can be interpreted as a setting where one subsample is controlled for economic constraints.

The availability of population data is useful to the practitioner of the Swiss Armed Forces and allows the development of a sample selection model. This model has shown that the sample selection bias is small in size and is explainable by variables irrelevant to the present findings. Thus, the findings presented can be interpreted as representative to the population.

Despite all these strengths, I have to address several limitations of the study. Three limitations concern the methodology, and another three pertain to the chosen sample.

Methodologically, the cross-sectional design makes it impossible to conscientiously derive causality. Also, developmental aspects can not be recognized. This is not only an issue with regard to possible impacts of external events, such as reorganizations, but also with regard to age-related differences. In particular, it the question whether differences found in outcomes such as army-life balance pertain to age developments or generational changes must remain unanswered. The self-reported nature of data represents another methodological issue. Whilst for attitudinal measurements, such as work satisfaction or turnover intentions, self-reporting represents an obvious and unproblematic approach. Inclusion of other sources, such as supervisor ratings or sickness data of the organizational records would have improved predictive strength. However, such an inclusion was not feasible with regard to outlay and data privacy. As a third methodological issue, I note the translations. Most of them have not been validated previously in non-military samples. Thus it remains open whether distinct measurement statistics, such as strongly left skewed work effort, is due to the subtleties in the translations or is sample-specific.

With respect to the sample, the first and foremost issue is that a military sample essentially remains just that, a military sample. The previously stated advantages notwithstanding, other aspects, such as the institutional background of Armed Forces – in the sense of Moskos (1977b) – may at least partly lead to different findings than a sample of a private corporation would provide. Also, the chosen population of all active reservists oversampled Infantry and Artillery units, and ignored the Air Force, which is considerably staffed with reservists, as well. To close, it is indisputable that the Swiss system still presents a special case. This holds true for the particular organizational form of a militia, but also for the organizationally – in contrast to domestically – negligible weight of foreign deployments. Consequently, deviating findings may be expected for different service systems, strategic directions, or both.

3.9.2 Research perspectives

Before turning to the research perspectives following from the main chapters 4 to 6, the present chapter 3 examines findings and makes suggestions possibly relevant to further research. These perspectives may be transferred to any military and non-military sample, providing an outlook on how the findings that make up the main chapters may be interpreted in a generalizable way.

First, the further development of Meade and Craig's (2012) methods to detect careless response behavior can be directly adapted to other studies. Relying on Euclidian distances rather than within-

person correlations reduces the arbitrariness of the antonym measure. Measuring average standard deviations provides an alternative to the author's long string method, where items are (semi-)randomly presented. In either case, simulation studies are needed to provide suitable cut-off values, possibly contingent of sample sizes. Investigating odds ratios between false negatives and false positives may present a feasible way to fill this methodological gap.

Second, the study provides translations into German, French, and Italian of the four outcome measurements presented in chapter 3.6.3. Their presentation in appendix A allows for further testing of these translations. To simplify comparisons, each item in the appendix comes with the corresponding statistical facts, such as mean, standard deviation, skew, and excess kurtosis. Furthermore, application of these translations in private sector samples would further contribute to the detection of presumable idiosyncrasies.

Third, the expansion of Schuller and Rau's (2013) measure opens a new view on their work-life-balance scale. Apparently, the impact of work on non-work obligations is separable from the impact of work on spare time, whereas work stands for military obligations in the corresponding test among senior active reservists. Thus one may try to adapt such a refined army-life-balance measure to the non-military case, presumably by shaping non-work obligations more concisely.

Fourth, the contrast of the job level-turnover intention relationship, when military professionals are compared to civilian employees, is of particular interest, because the effect of job level on turnover intention is still understudied (Holtom et al., 2008, p. 261). Whereas military professionals' turnover intentions decrease with increasing job level, civilian employees report stronger turnover intentions in higher job levels. Assuming that military professionals are more prone to monopsony than civilian employees (see chapter 2.2.4), one may suggest that monopsony is a moderator to the job level-turnover intention relationship. Given that monopsony may no longer be considered as a special, but rather a gradual characteristic of all labor markets (Manning, 2003), this suggestion merits further investigation.

Fifth, the assumed equivalence of impression management, as a part of socially desirable answering behavior, may be identified with impression management as an active organizational behavior in the sense of Leary and Kowalski (1990, p. 34). Of course, such a strong assumption needs further study. However, if future research showed that the identity between answering behavior and organizational behaviors is valid, the general impact on the use of social desirability in surveys may be considerable. Indeed, controlling for social desirability would then be tantamount to controlling this particular group of employees and would thereby distort findings.

Sixth, the impact of social desirability may also be investigated more closely when it comes to voice behavior. Similar to the previous point, controlling for social desirability would at least partly mean controlling for voice behavior, if such an equivalence was found in further studies. This, however, would again obscure findings in studies controlling for social desirability, for any outcome dependent on voice behavior.

Seventh, the suggested interpretation of lower self-reported work effort as a more pragmatic orientation was proposed, but testing such a suggestion would be far beyond the scope of this study. However,

it constitutes a further aspect of the intricate relationship between motivation, effort, and performance. If one is not willing to accept that senior active reservists show less effort than military professionals – and at least in the normative sense of the term, I do not accept this – then work effort should only cautiously be interpreted as a purely desirable outcome. Rather, some curvilinear relationship between effort and performance, with an optimal point though being «right from the center, but below of the top», seems more realistic. Only studies involving both quantitative performance measurements and self-reported work effort may disentangle this relationship.

Eighth, the statistics on control variables suggest that both rank and tenure should be integrated into research models more cautiously. In terms of rank, the suggested combination of an ordinal rank measure and an additional officer dummy may be directly applied to all research in armies that distinguish between officers and NCOs, which is the case for most armed forces of the world. Yet the particular treatment of tenure as a control variable may not even be reduced to armed forces samples. It is conceivable that different tenure definitions may come into play whenever there is some affiliation of an individual to the organization prior to his employment. For instance, the tenure of academic personnel may differ for employees who had previously been students at the same university. As another example, professionals in sports may form different bonds to their employer, depending on whether they were junior members of the same organization prior to their formal employment. In any case, the differences found with respect to seemingly trivial control variables such as tenure or rank underscore the importance of context in Organizational Behavior.

3.9.3 Practical implications

Practical implications based solely on control and outcome descriptives are sample-specific by nature. Nevertheless, these findings suggest how relationships may be revealed in other samples. However, the Swiss Armed Forces may directly consider adaptation of their HR practices for those segments encountering more difficulties.

First, in terms of work satisfaction, these are military professionals between 31 and 40 years,[25] specialist officers and specialist NCOs, and active reserve SCNOs.

Second, in terms of turnover intentions, these are again military professionals between 31 and 40 years, particularly NCOs and captains. Additionally, the increased values of turnover intentions for civilian employees in superior positions are of concern, because the effects of such intentions on performance are particularly pronounced for high job levels (Hancock, Allen, Bosco, McDaniel, & Pierce, 2013).

Third, in terms of army-life balance, the previous findings are further underscored. The «usual» critical age segment of military professionals in general, and Italian speakers, active reserve captains, and the highest ranking military professionals in particular, report very low levels of army-life balance.

25 As I belong to this very segment I must address a potential conflict of interest in this statement. Indeed, although greatly pleased by the special arrangement the Swiss Armed Forces offered to me when allowing the present research project, I still share potential concerns of my cohort, and admit that I know causes for the reported relative dissatisfaction by personal experience.

This implies that military top management shares a particular responsibility, given that they likely act as role models for other military professionals, civilian employees, and senior active reservists alike.

Fourth, in terms of work effort, the picture is less straightforward. On the one hand, senior active reservists have reported lower effort levels than employees. On the other hand, younger, lower positioned, and lower ranked military professionals report lower effort levels than (older) senior and top management military professionals. Of course, self-reported effort must not be confounded with a – possibly more objective – performance measure; the according caveat is implicit to the seventh research perspective proposed in the previous chapter 3.9.2. Nevertheless, it indicates at least some heterogeneity in work culture. It is unlikely that the lower reported effort levels among younger military professionals is due to generational changes, because the same effect has not been found in the parallel age cohort of the civilian employees and senior active reservists. Rather, some cultural change has likely occurred. However, if HR professionals and the Armed Forces Command were to misattribute these observations to generational changes (when in fact, organizational changes may be the cause) those in charge risk finding solutions that do not necessarily answer the right questions.

Chapter 4

Three Layers of Psychological Contracts

> The fulfillment of the psychological contract, however,
> requires more than organizational formalities.
> Interdependence with the organization
> requires and implies relationships with people.
>
> *Men, Management, and Mental Health* (Levinson et al., 1962)

4.1 Introduction

What determines the behavior of individuals at work? What gives rise to their work effort? What drives their satisfaction, and what makes them stay or leave? A conventional – and palpably reasonable – view of the individual's work engagement is the exchange of inducements by the organization for contributions of the individual (March & Simon, 1958). Such a relationship is usually set down in a contract.

As in the private sector, such legal contracts bind civilian and military employees to the Swiss Armed Forces. However, no work contracts exist for senior active reservists. At best, the reservist has written a notice of intent, or has received a letter of promotion; yet the most binding document, the marching order, is not agreed upon (see chapter 2.1.2.3). In any case, the behavior of individuals with identical contracts varies widely, and conscripts or volunteers contribute even without written contracts. Beyond legal elements, many inducements and contributions are not fixed on a paper – and some obligations are not even spoken ones. Such contents of relationships are abstracted into the psychological contract (Rousseau, 1989).

Psychological contract is not a term of everyday language (N. Conway & Briner, 2005). This is both boon and bane when it comes to defining the concept. On the one hand, no everyday meaning needs to be disregarded. On the other hand, the lack of common understanding implies a special need to clarify the meaning both to scholars, to create interpretable outcomes, and to practitioners, enabling them to put these outcomes into practice. Thus developing a concise definition is of particular importance.

Following a suggestion by Petersitzke (2009), I propose that the psychological contract is an individual's mental model of his exchange relationship with the organization. Models are always models *of* something (Stachowiak, 1973), and the original mapped into the psychological contract is the exchange between the individual and the organization (Petersitzke, 2009). Both economic and social exchanges may occur in such a relationship (Blau, 1964). Models share the structure of their origins (Johnson-Laird, 2004); thus the psychological contract reflects this diverseness of exchanges.

Economic inducements are subject to the transactional contract. Employees may value an occupation's implicit job security, the retirement scheme, or simply the pay. Senior active reservists may benefit for their civil career, for instance by learning enriched leadership skills. Box 4.1 provides exemplary statements of survey participants reflecting the transactional layer.

In contrast, the relational contract comprises socio-emotional inducements. People sense a feeling of belonging, they identify with the organization, or they feel valued as an individual within this organization. Box 4.2 contains statements regarding the relational layer.

These layers were first suggested by Rousseau (1989, 1990) and have triggered a bulk of studies confirming their distinctness (Zhao, Wayne, Glibkowski, & Bravo, 2007). Yet Blau (1964) described a third exchange, involving «purposive or ideological incentives» (p. 238), a notion that gained considerably less

Box 4.1: Quotes from survey participants reflecting the transactional contract

«Fixe Arbeitszeiten würden aus meiner Sicht in der Armee auch Sinn machen.» [no. 159]

«Den BM wurde in den letzten Jahren Vieles gestrichen. (…) Vom Bund als sonst so vorbildlicher Arbeitgeber würde man etwas anderes erwarten, als einseitig die Verträge anzupassen mit der Wahl, du kannst ja kündigen!» [no. 656]

«Ich bitte den Chef der Armee inständig, endlich neue Materialien an die Infanterie zu verteilen! Seien dies die neuen Rucksäcke, die neuen (grauen) KS, neue Schutzwesten oder die Gore-Tex Jacke von April bis September. (…) Besseres Material würde die Moral der Truppe erheblich stärken» [no. 995]

«Die aktuelle Lohnsituation ist sehr unbefriedigend.» [no. 2977]

«Für Teilzeit-Hausmänner unter 50% gab es nie Erwerbsersatz. Externe Kinderhüten während des Militärdienstes mussten aus der Privatkasse bezahlt werden.» [no. 2638]

« Le système APG est particulièrement désavantageux pour les officiers, étudiants et travaillant en plus de leurs études. » [no. 3588]

attention. Only in 2003 did Thompson and Bunderson suggest an additional, third layer, the ideational[26] contract. Their proposition has sporadically gained attention in quantitative studies (Bal & Vink, 2011; Vantilborgh et al., 2014), and studies involving all three layers are scarce (Bingham, 2005; Bingham, Oldroyd, Thompson, Bednar, & Bunderson, 2014).

Subject to the ideational contract are ideological inducements. Using the example of the Swiss Armed Forces, employees and reservists may want to contribute to the security of the country, or they feel bound in honor to society. In such cases, the organization becomes a presumably important instrument to serve a higher cause. However, and this represents a crucial difference to the other two layers, the beneficiary of the relationship is neither the individual, nor the organization, but some higher cause or principle.

The ideological layer in particular, and the psychological contract in general, is not restricted to armed forces. In the example of a clerk working in a hospital administration, a patients' health may represent a cause subject to ideological inducements. Dyadic relationships, such as marriage, may be shaped by socio-emotional (or economic) inducements. Thus, although I restrict the terminology to the individual and the organization, the logic behind this may be transferred *mutatis mutandis* to other relationships.

Inducements differ not only with regard to content, but also in terms of extent – boxes 4.1 to 4.3 illustrate this in an straightforward, unvarnished way.[27] Matching promised and delivered inducements results in fulfillment of the psychological contract (Schurer Lambert et al., 2003). Where deliveries exceed promises, the contract is overfulfilled, and in the opposite case, the contract is underfulfilled. In such a case, the literature often refers to a *breach* or even a *violation* of the psychological contract. However,

26 (Thompson & Bunderson, 2003) coined the term of the ideology-infused contract, but I suggest this alternative notation to avoid the unfavorable connotation of ideologies, and to distinguish the label of the layer from the label of the inducements, called ideological currency.

27 All quotations stem from a free comment box on the last page of the survey. Thus, examples are not representative. Comprehensibly, participants report underfulfillment rather than statements such as «I do earn enough» or «I am valued too much».

Box 4.2: Quotes from survey participants reflecting the relational contract

«Für mich fehlt die Anerkennung!» [no. 1271]

«Was mich in meiner Position als Zfhr am Meisten stört und auch ausschlaggebend war für meine Ablehnung des Vorschlags zum Hptm war die fehlende Wertschätzung von oben.» [no. 2044]

«Ich bin enttäuscht über die Art und Weise, wie ein langjähriger, erfahrener Mitarbeiter in meinem Alter von seinem Vorgesetzten eingesetzt wird. Ich fühle mich dadurch teilweise sogar gedemütigt.» [no. 2119]

«mir (wurde) kürzlich ohne Vorankündigung und für mich völlig überraschend mittgeteilt, dass ich versetzt werde. Es fanden keine Gespräche mit mir statt (…) Ich bin zurzeit sehr enttäuscht und mein Glaube in den Arbeitgeber Bund ist zutiefst erschüttert.» [no. 3285]

I adhere to Montes and Irving's (2008) notion of the underfulfilled contract, to emphasize the full range, extending as far as to an overfulfilled contract.

To answer the initial questions, the psychological contract determines (or at least influences) the individual's behavior at work. Fulfillment yields satisfaction, promotes work effort, and provides a reason to remain in the present organization. The consequences of overfulfillment are said to depend on the contract layer; it is likely, that an excess in ideological inducements is more problematic than an excess in economic inducements, at least for some individuals. In contrast, underfulfillment usually causes detrimental behavior, although ideational contracts sometimes differ in effects (e. g., Bunderson & Thompson, 2009).

The psychological contract was used to study obligations beyond a formally written legal contract[28] since the 1960s (Argyris, 1960; Levinson et al., 1962; Etzioni, 1964; Schein, 1965). However, Rousseau's (1989) seminal contribution introduced the now-dominant understanding. In her view, inducements of the organization do not have to match reciprocal contributions of the individual. Rather, the «individual's beliefs regarding reciprocal obligations» (p. 390) make up the contract. Today, most, but not all scholars follow Rousseau's conceptualization (Petersitzke, 2009).

There is a consensus about some characteristics of the psychological contract: the contract includes both implicit and explicit elements (Robinson, 1996), and binds the actor to a certain course of action (Rousseau, 1990), such as staying with the organization. However, a considerable amount of varying conceptualizations exists (N. Conway & Briner, 2005). Thus I see seven opportunities for advancing scholarly and practicable understanding of the psychological contract.

Box 4.3: Quotes from survey participants reflecting the ideational contract

« Je tiens à rester incorporé au sein de notre armée pour continuer à soutenir ce système dans lequel je crois. » [no. 383]

«Ich finde, dass die Schweizer Armee im Bereich friedensfördernden Einsätzen zu wenig Engagement leistet.» [no. 1008]

«Es ist ein Privileg seinem Land Dienst zu tun.» [no. 1095]

28 For a comparison of the legal contract and the psychological contract, see Middlemiss (2011).

First, despite the influence of Rousseau's (1989, 1990, 1995) contribution, controversies remain regarding the *nature* of the psychological contract. First and foremost, the psychological contract is either regarded as an exchange relationship, or as a mental model of a relationship (Petersitzke, 2009). Second, a variety of *content* sets exists beyond the transactional, relational, and ideational contract (Thompson & Bunderson, 2003; Rousseau, 1990), ranging from training as an additional dimension (Coyle-Shapiro & Kessler, 2000) to a set of 12 categories (Herriot, Manning, & Kidd, 1997). Third, the *structure* of the psychological contract is disputed. Fourth, the *measurement* of the psychological contract allows for different operationalizations (Schurer Lambert et al., 2003; Edwards, 1994).

Fifth, questions remain regarding the *generalizability* of the psychological contract. Several authors argue that transactional contracts do not occur among volunteers, and only a few quantitative studies so far have investigated the ideational contract (Bal & Vink, 2011; Vantilborgh et al., 2014; Bingham et al., 2014). Sixth, whereas the *outcomes* of transactional and relational contracts have been studied extensively (see Zhao et al., 2007), no study so far has compared transactional, relational, and ideational contracts with respect to fundamental expressions of Organizational Behavior, such as satisfaction, turnover intentions, or effort. Seventh, we come to the *application* of the psychological contract. The psychological contract has been criticized for its «limited practical application», which has been explained by its weak theoretical foundation (N. Conway & Briner, 2009, p. 121). Yet a proper understanding of psychological contracts may foster the implementation of findings.

Adhering to a more general Organizational Behavior approach, the first four points can be summarized into

> **Research Question 4.1:**
> What is the nature, content, and structure of the psychological contract construct, and how is it best measured?

Further, not only Organizational Behavior research interests, but also particular Armed Forces and Society research interests are addressed in

> **Research Question 4.2:**
> How does the psychological contract of military professionals, civilian employees, and senior active reservists within the Swiss Armed Forces differ in generalizability and outcomes, and what applications can be derived from these differences?

In answering these questions, I am contributing to the literature in six ways: First, I advance a suggestion by Petersitzke (2009), stating that the psychological contract is a mental model of the exchange relationship. By elaborating the structure of the psychological contract based on model theories (Stachowiak, 1973; Johnson-Laird, 2004) and the contents on social exchange theory (Blau, 1964), I overcome the dichotomy between the understanding of psychological contracts as exchange relationships and psychological contracts viewed as mental models (N. Conway & Briner, 2005; Cullinane

& Dundon, 2006). This approach resolves the *agency* problem (Guest, 1998a) by restricting analysis to the individual level.

Second, I substantiate the existence of the transactional, relational, and ideational layer (Rousseau, 1990; Thompson & Bunderson, 2003). I provide the first simultaneous study of all three layers in a large sample ($n = 2\,928$), after Bingham's (2005) scale development ($n = 371$) and a detailed study of social hierarchies ($n = 54$, Bingham et al., 2014). I find that these layers exist among three distinct subpopulations, yielding strong support to the cross-sample validity of the psychological contract in three layers. Moreover, I find preliminary evidence for the separability of the transactional layer into a transactional-monetary and a transactional-content sub-factor. Chapter 6 will refer back to this notion.

Third, regarding the structure of psychological contracts, I provide evidence that the transactional, relational, and ideational layer represent different dimensions (Coyle-Shapiro & Kessler, 2000), rather than one single dimension ranging from transactional to relational (or ideational) contracts (e. g., Millward & Hopkins, 1998). This suggestion was derived from specific characteristics of mental models (Johnson-Laird, 2004), which in turn corroborates this approach.

Fourth, I use a new operationalization, combining direct measurement of fulfillment and polynomial regression analysis (PRA; Edwards & Parry, 1993). PRA avoids the issues of difference scores; however, it has been criticized for no longer directly addressing breach and fulfillment of contracts (N. Conway et al., 2011). Applying PRA to promises and fulfillment rather than to promises and deliveries (Schurer Lambert et al., 2003) combines the advantages of both approaches. The chosen combination allows for investigating the full range from underfulfillment to overfulfillment, and from low to high absolute fulfillment, without forgoing direct measurements of fulfillment.

Fifth, I consolidate generalizability of the psychological contract into three layers. All three layers exist across different subsamples, from reservists to civilian and military employees. This implies that transactional layers exist in psychological contracts of volunteers, although this has usually been denied – but not reported – in previous research (e. g., Vantilborgh et al., 2014; Bingham et al., 2014). The generalizability of psychological contracts across all military populations opens new opportunities for research in military sociology. Beyond this, the application of robust Organizational Behavior measures in formerly isolated military settings contributes to bringing Armed Forces and Society into the research «mainstream», a deficiency that has been criticized (see Gade, 2003).

Sixth, I compare organizationally relevant outcomes of the three contract layers. In previous research, only a few studies have addressed ideational contracts. Besides the creation of the ideational scale (Bingham, 2005), the only quantitative study including all three contracts takes a (however detailed and enlightening) social hierarchy view (Bingham et al., 2014). In contrast, I compare the outcomes of the three contract layers in terms of fundamental Organizational Behavior, namely work satisfaction, turnover intention, and work effort, and for $n = 2\,820$ individuals. This further substantiates the organizational relevance of all three contract layers.

In addition, I suggest practical implications, ones which directly address the Swiss Armed Forces, but which are likely transferable to other organizations. Moreover, understanding the psychological

contract as a mental model helps to overcome the notion that *the* psychological contract has evolved in general (e. g., Cavanaugh & Noe, 1999; Arnold, 1996; Guest, 1998a). If there was only one psychological contract, organizations could do little to change it. If individuals have individual psychological contracts, organizations may act on them, for instance by adjusting HR practices.

Furthermore, the present conceptualization of the psychological contract into three layers opens the door to relating the concept to other constructs. This is the subject of the other main chapters of the present dissertation. In chapter 5, I relate the transactional, relational, and ideational contract to continuance, affective, and normative commitment (N. J. Allen & Meyer, 1990). In chapter 6, I investigate the connections between the three contract layers and the Job, Career, and Calling orientation (Wrzesniewski et al., 1997).

The rest of chapter 4 is structured as follows: chapter 4.2 describes the psychological contract construct to develop workable definitions, and treats testable hypotheses. Chapter 4.3 lists the empirical methods, namely the measures applied in the survey and the models used for hypothesis testing. Chapter 4.4 provides a summary of the descriptive results and hypothesis tests. Finally, chapter 4.5 summarizes the findings, refers to relations of the psychological contract with other constructs, elaborates limitations and implications for further research, and suggests practical implications.

4.2 The Construct of the Psychological Contract

To start, chapter 4.2.1 provides a brief review of the psychological contract before Rousseau (1989). Contrasting these early contributions, chapter 4.2.2 presents Rousseau's re-definition as the core of the understanding of psychological contracts in the present dissertation. Chapter 4.2.3 advances Petersitzke's (2009) notion that both mental model theory and social exchange theory may contribute to the theoretical fundament of the psychological contract. Chapter 4.2.4 elaborates the nature of the construct, yielding definition 4.1 of the psychological contract. Based on this definition, chapter 4.2.5 derives the contents of the psychological contract and thereby provides the central proposition 4.1. Chapter 4.2.6 suggests the structure of the construct, providing the testable hypotheses 4.1 and 4.2. In chapter 4.2.7, hypothesis 4.3 suggests differences in psychological contracts between the subsamples of the present study. In addition, chapter 4.2.8 establishes hypotheses 4.4 to 4.7 regarding outcomes of the psychological contract in the Swiss Armed Forces.

4.2.1 Early development of the psychological contract construct

The history of the psychological contract construct falls into two parts: before and since Rousseau's (1989) seminal paper (Roehling, 1997). Before that, there was no common field of psychological contract studies nor was a lot of attention paid to the construct. Rousseau's contribution led to a tremendous growth of work concerning the psychological contract (Zhao et al., 2007). This inconsistent development may be, at last in part, responsible for the often criticized theoretical shortcomings of the construct (e. g., Guest, 1998a; N. Conway & Briner, 2005). A brief historic overview may thus be helpful to overcoming these shortcomings later.

The idea of both implicit and explicit contents of the employee-employer relationship can be found as early as in March and Simon's (1958/1993) inducement-contribution model (p. 90). The American psychiatrist Menninger (1958) wrote about the patient-therapist relationship in a similar way (N. Conway & Briner, 2005, p. 19). Yet it was Argyris (1960) who first coined the term *psychological contract* and applied it to the employee-employer relationship. To him, the term was more than a metaphor, but «a concept …created to help organize and explain certain phenomena» (p. 96). Working independent of Argyris, Levinson et al. (1962) provided a full concept of the psychological contract, including a definition.[29]

The development of the psychological contract construct in the next decades was limited; in particular, there was no coherent theory created (N. Conway & Briner, 2005, p. 7). This, however, does not mean that these early contributions were irrelevant to more current studies. Etzioni (1964) created a typology of different contracts – a notion taken up again by Rousseau (1989, 1995) and many others (e. g., Hui, Lee, & Rousseau, 2004; Chien & Lin, 2013). In a similar way, Schein (1965, p. 65) described different layers.

29 Lists of definitions can be found, among others, in N. Conway and Briner (2005, pp. 21–22) and in Petersitzke (2009, pp. 15–16).

Two notions from the early development of the theory are still relevant for us today. First, psychological contracts are not restricted to employee-employer relationships, but may in fact be applied to other relationships such as wife-husband, teacher-student, state-individual, or provider-customer (N. Conway & Briner, 2005, pp. 15, 20). Second, there is no consensus on how one counterpart might alter the psychological contract intentionally. For an organization, this means managerial leverage.

The most common proposition is to make implicit promises more explicit. Menninger (1958) was the first to suggest this approach, and to positively influence the patient-therapist relationship. Similarly, Guest and Conway (2002) found evidence that a more explicit psychological contract is more effective and less likely to be breached. In their sample, $n = 1\,306$ senior managers represented an organization as potential agents. However, their findings have to be read with caution. The authors provide no evidence that the agent's view corresponds to the view of the holder of the psychological contract.

Recently, N. Conway and Briner (2005) discussed the pitfalls of making psychological contracts more explicit in detail. The contents of psychological contracts may lose their power if they are fully spelled out, and making implicit promises inevitably requires a focus on a smaller set of promises, which may in turn dominate the psychological contract. Therefore I discuss alternative ways of applying the psychological contract in chapter 4.5.4.

4.2.2 Rousseau's conceptualization of the psychological contract

In the 1990s, heated academic debates revolved around the nature of the psychological contract, most notably the exchange of articles between Guest (1998a, 1998b) and Rousseau (1998). In the meantime, the discussion has calmed down, but ever since then, two opposite interpretations can be found in the literature, one advocating a return to the traditional way of looking at the psychological contract as some form of *exchange*, the other following Rousseau's concept (Cullinane & Dundon, 2006; Petersitzke, 2009).

I adhere to Rousseau's understanding, arguing for its greater conceptual clarity and stronger predictive power. Therefore I illustrate the 4 shifts involved in her reconceptualization (N. Conway & Briner, 2005, p. 14):

a. The psychological contract is about *promises* (Rousseau & McLean Parks, 1993) and obligations (Rousseau, 1998), not about expectations.
b. The psychological contract is formed by *perceptions* (Rousseau, 1989) rather than by «deeper-lying motives, such as needs» (N. Conway & Briner, 2005, p. 14).
c. The psychological contract is subjective and it exists at an *individual level*; «organizations cannot ‹perceive›» (Rousseau, 1989, p. 126).
d. It is not the match between an employee and an employer, but the potential *violation of the subjective psychological contract* that matters (Rousseau, 1989).

Promises are more «contractual» (N. Conway & Briner, 2005, p. 23) than expectations, although «words are not needed to create promises» (Rousseau & McLean Parks, 1993, p. 6). Crucially, this difference is taken into account by the creation of a measure in chapter 4.3.1, when introducing content items with «I think, the Swiss Armed Forces are obligated…» rather than «I expect the Swiss Armed

Forces to…».[30] Robinson and Rousseau (1994) are precise concerning the matter of these promises: «The psychological contract, unlike expectations, entails a belief in what the employer is obliged to provide, based on perceived promises of reciprocal exchange» (p. 246). This distinction is of particular importance to chapter 6.

The restriction on *perceptions* of observable behavior allows for both explicit and implicit contract elements. A promise may be as explicit as a written HR strategy, for instance «With regard to the high demands on its employees, the federal administration offers a work environment acknowledging the needs and requirements of mobility, work-life balance, and health» (Federal Office of Personnel, 2015, my translation). Yet it may be implicit, as in the case where a newly hired accountant sees his superior holding the door open for his subordinate. Both implicit and explicit promises build the psychological contract, but implicit promises «exert more influence on cognitions and behavior» (Rousseau, 1989, p. 124). When it comes to empirical research, the key role of perceptions implies that self-reported measures are not only adequate, but probably the only way to learn about an individual's psychological contract.

This confinement of the psychological contract to the *individual level* has led to several critiques. Guest (1998a) charged the psychological contract with a serious lack of construct validity, the organizational side within the contract being obscure. Rousseau's (1998) answer resolves the issue: «the *perception* of mutuality and not mutuality in fact is the heart of the psychological contract» (pp. 665-666, her emphasis). This role of mutuality determines the level of analysis (N. Conway & Briner, 2005): if the psychological contract was a merely subjective concept, it could be analyzed at the individual level. If it involved «agreement across parties» (p. 29), the relation itself should be investigated instead. A relational understanding may be closer to a conventional, that is, legal contract. However, it also introduces what Guest (1998a) called «the agency problem» (p. 652) – who actually perceives for the organization in this relationship? Rousseau (1990) avoids the issue by stating that «mutuality is not a requisite condition» (p. 391). Thus, following her interpretation, the psychological contract is inherently subjective.

This *subjective* understanding of the psychological contract is inseparable from the view of *breach and violation*. Early proponents understood the psychological contract as reciprocal fulfillment of the organization's and the people's needs (e. g., Levinson et al., 1962, p. 126) or, in the wording of March and Simon (1958), a match of the employer's inducements with the employee's contributions. Notable authors have continued to compare an employer's and an employee's obligations (e. g., Shore & Barksdale, 1998; Coyle-Shapiro & Kessler, 2002). Yet empirical support for the relationship between an employee's behavior and an employer's promises and vice-versa is «somewhat contradictory», and often, such studies explain no more than 5% of variance (Coyle-Shapiro & Kessler, 2002, pp. 59, 82). In contrast, the intrapersonal match is a powerful tool in the prediction of individual and organizational outcomes (Zhao et al., 2007). In the subjective view, the match between perceived promises and perceived deliveries *by* the employer is crucial to the psychological contract *of* the employee (Schurer Lambert et al., 2003).

30 This is an english back-translation. For the language versions actually used in the survey, refer to appendix A.1.

Thereby, a match equals a fulfilled contract, and promises exceeding deliveries correspond to a breach of the contract.

Beyond these 4 conceptual shifts, the «followers of Denise Rousseau» differ in views on the psychological contract (Petersitzke, 2009, p. 31). Namely, the nature, content, and structure of the construct are not unambiguously defined throughout the literature. Removing the ambiguities helps avoid what Guest (1998a) called «an analytic nightmare» (p. 650), crucial to the development of hypotheses and choice of methodology.

4.2.3 The theoretical foundation of the psychological contract

The theoretical foundation of psychological contract research has been criticized for being «underspecified and somewhat weak» (N. Conway & Briner, 2005, p. 157). Several reviews (e. g., N. Conway & Briner, 2005; Cullinane & Dundon, 2006; Petersitzke, 2009) distinguish two approaches. Either, the psychological contract is an exchange relationship, or it is a mental model of the exchange relationship. This choice determines which theory can be drawn on, with consequences for the nature, content, and structure of the psychological contract construct. In the words of Petersitzke (2009, p. 61):

> When psychological contracts are defined as exchange relationships, then social exchange theory is thought to be an appropriate and relevant theoretical basis. For the purpose of this research however, psychological contracts are defined as mental models. The content of this mental model is the exchange relationship between employee and employer. Thus, social exchange theory can offer some insight, but it is not sufficient as a theoretical basis of psychological contracts as it misses the perceptual element that is central to the definition.

Arguing strictly, one may object that Rousseau's conceptual shift towards an individual, subjective, and perception-based understanding only allows for the mental model interpretation. Indeed, Rousseau (2001) does not state that the psychological contract *is* an exchange agreement, but only that it «comprises subjective beliefs *regarding* an exchange agreement» (p. 512, my emphasis). Nevertheless, authors often refer to social exchange theory, even when adhering to a «Rosseauean» definition of the psychological contract (e. g., N. Conway & Briner, 2005; Robinson, 1996; Thompson & Bunderson, 2003; Dulac, Coyle-Shapiro, Henderson, & Wayne, 2008).

On the one hand, the affinity of *social exchanges* and psychological contracts is undeniable. The norm of reciprocity (Gouldner, 1960) stabilizes social exchanges (Blau, 1964) and is crucial to psychological contracts (Rousseau, 1989). In addition, the distinction between economic and social exchange closely reflects transactional and relational contracts (Rousseau, 1990, see chapter 4.2.5), and «social exchange theory [helps explain] why specific kinds of contents affect outcomes» (N. Conway & Briner, 2005, p. 56). However, social exchanges include «at least two persons» (Blau, 1964, p. 88), causing the agency problem brought up by Guest (1998a).

On the other hand, interpreting the psychological contract as a *mental model* is in line with Rousseau, who understands the psychological contract «as a mental model of the exchange . . .rather than as an agreed upon exchange» (Coyle-Shapiro & Parzefall, 2008, p. 21). Rousseau (2001) introduced this notion herself, and several authors (e. g., Coyle-Shapiro & Parzefall, 2008; Bal, De Lange, Jansen, & Van Der Velde, 2008) have followed her, but all of them, including Rousseau, have done so without referring

to the corresponding literature of cognitive psychology (Petersitzke, 2009). Yet the interpretation of psychological contracts as mental models overcomes the agency problem (Rousseau, 1998).

In summary, both mental models and social exchange theory have their potential to advance knowledge about psychological contract and can guide research towards testable conclusions. Instead of preferring one to the other, I follow Petersitzke (2009) who proposed in her conclusion that «existing research on social exchange and mental models needs to be integrated with the empirical data collected by psychological contract researchers» (p. 145), but not in the way she suggested.[31] Rather, I understand *integration* literally. Although I refer to mental models to describe the *nature* of the psychological contract, I understand transactional, relational, and ideational *contents* of psychological contracts as reflections of what social exchange theory entails (Thompson & Bunderson, 2003). Key to this fusion is the notion that mental models and the original represented by them, here the exchange relationship, share the same structure (Johnson-Laird, 2004).

4.2.4 The nature of the psychological contract

Mental models can be regarded as a particular class of models; thus it can be helpful to transfer the characteristics of general models to mental models (Dutke, 1994). An exhaustive treatise of models in general was written by Stachowiak (1973), providing three main characteristics (p. 131). Applying these three characteristics to the psychological contract concept is quite insightful (Stachowiak, 1973, p. 131; my translation):

> Models are always models *of* something, namely mappings or representations of natural or artificial originals, which may themselves be again models.

Thus, by interpreting psychological contracts as mental models, the characteristics of exchange (as described on behalf of social exchange theory) are not lost. It is important to acknowledge that mental models and the situation they represent share the same structure (Johnson-Laird, 2004, p. 181) and therefore any suggestion evolving from social exchange theory may be deliberately transposed into the psychological contract. The next characteristic reads (Stachowiak, 1973, p. 132; my translation):

> Models do not generally contain all attributes of the represented original, but only those which seem relevant to the creator and/or user of the model.

The filter of relevance in terms of the psychological contract is the perception of the observable behavior (Rousseau, 1989). By means of these two characteristics, I can now provide the following

> **Definition 4.1:** The *psychological contract* is an individual's mental model of the exchange relationship he has with the organization, shaped by those perceptions of the organization's observable behavior which seem relevant to him to understanding this relationship.

31 Petersitzke's (2009) proposition was that «This kind of research would have to be qualitative where repertory grid or thinking-aloud techniques could be used to explore how individuals form ideas about mutual obligations at work.» (p. 76). However, this approach would interfere with the scope of the present study.

In this study, individuals are employees or senior active reservists, and the organization is the Swiss Armed Forces. The third characteristic of models further advances the understanding of the psychological contract as a mental model (Stachowiak, 1973, pp. 132–133; my translation):

> Models are not isomorphic to their originals. They are valid only for a) certain subjects, b) within a certain time frame, c) with regard to certain notional or actual operations.

This notion goes beyond the proposition that the psychological contract is subjective (see chapter 4.2.1). To explain, I shortly discuss the three limitations a) - c).

Statement a) installs an upper and a lower boundary of applicability to the psychological contract. On the one hand, the restriction («only») counters the generalization many authors imply when they argue that the psychological contract has changed in general (e. g., Cavanaugh & Noe, 1999; Arnold, 1996; De Meuse, Bergmann, & Lester, 2001). Stating that «the psychological contract in United States businesses has changed», comparing an old with a new contract (Cavanaugh & Noe, 1999, p. 324), is not compatible with the mental model view; there is simply no one single psychological contract. On the other hand, the extension («subjects») means that nevertheless, specific groups may share a common psychological contract. Therefore, it is theoretically valid to postulate that prototypical psychological contracts for «certain» groups exist, such as for the subsamples in the present study.

The time frame, as denoted in b), is relevant to the creation and development of psychological contracts. Complementary views exist on whether mental models are rather unstable or rather resistant to change (Dutke, 1994, p. 13). Presumably, mental models are hard to change as long as they are functional (ibid.). This is plausible with respect to the psychological contract. The psychological contract may be altered as long as the development is beneficial to its functionality, for example during the recruiting process. However, when it has reached a certain level of functionality, one expects some resistance to change, which is a precondition for breaches; such an event would not occur if the psychological contract were able to change too easily.[32]

Statement c) sets the focus of the psychological contract. Individuals can have different relationships to an organization. Some may work at a supermarket and be a customer there the same day. Others may both be employees and stockholders at the same time. Finally, in the case of the Swiss Armed Forces, military professionals are often senior active reservists in parallel, and as citizens who vote, they have yet another relation to the employer. Consequently, the specification in the questionnaire «Please indicate what the Swiss Armed Forces, *as your employer*, …» is crucial (see appendix A.1).

Understanding the psychological contract as a mental model is in line with Rousseau's (2001) conceptualization. It avoids doubts about the subject of study, prevents conceptual issues regarding mutuality and agency, and it allows for new interpretation of the creation, development, and violation of the psychological contract. Beyond these propositions of general model theory, statements about mental

32 This reasoning bears testable propositions. If they are correct, the psychological contract should be more resistant to change, the longer an employee stays within his organization. Although this seems quite credible, testing goes beyond the cross-sectional scope of this dissertation. However, the idea is taken up again in chapter 4.5.3.

models and from psychological contract research corroborate the compatibility of the two concepts (see table 4.1).

Table 4.1: General knowledge from mental model literature may be specified to the case of psychological contracts; Specific knowledge about psychological contracts may be generalized in terms of mental models.

Mental model	Psychological contract
Mental models exist at an individual level (Denzau & North, 1994)	«Psychological contracts are subjective, residing in the ‹eyes of the beholder›» (Rousseau, 1989, p. 246)
«Mental models may involve mistakes where reality is misrepresented.» (Petersitzke, 2009, p. 72)	«two parties need not agree for each to believe a contract exists» (Rousseau, 1989, p. 246)
mental models may be shared by a group of people in the same occupation, organization or really any group of people (Denzau & North, 1994)	Through socialization, U. K. army recruits develop their psychological contract significantly during the first 8 weeks and become closer to those of experienced soldiers (Thomas & Anderson, 1998)
Mental models are hard to change as long as they are functional (Dutke, 1994)	«perceived breach represents a cognitive assessment of contract fulfillment that is based on an employee's perception» (Morrison & Robinson, 1997, p. 230)
«Mental models develop from past experience and guide the way new information is organized» (Stein, 1992)	Violations experienced with former employers transfer to psychological contracts in new organizations (Pate & Malone, 2000)

However, the mere fact that the psychological contract is a mental model does not say anything about what the content of this mental model looks like. According to definition 4.1, psychological contracts are mental models of exchange relationships, and exchange relationships can be described in terms of social exchange theory (Blau, 1964). Thus it seems appropriate to draw from social exchange theory to describe the contents of psychological contracts.

4.2.5 The content of the psychological contract

The overarching goal of the present dissertation is to investigate theoretical cousins of the psychological contract and other Organizational Behavior constructs, based on a suggestion from Thompson and Bunderson (2003). Yet Thompson and Bunderson describe the psychological contract as tripartite, comprising a transactional, a relational, and an ideational layer. Thus, it would be disingenuous to start from Blau's (1964) social exchange theory and to arrive, miracle of miracles, at Thompson and Bunderson's (2003) triad. Rather, I present an overview of contents suggested in the literature, and argue why Thompson and Bunderson's (2003) triad best fits social exchange theory.

Psychological contracts are much broader in content than legal contracts (N. Conway & Briner, 2005), a notion already found in early contributions (e. g., Schein, 1965). Presumably, this broadness is the reason for the ongoing scholarly dispute among scholars over the contents of the psychological contract. For example, Guest (1998a) complained of the lack of a «coherent and conclusive list of

dimensions» (p. 658) and doubted whether such contents were stable across or even within organizations. N. Conway and Briner (2005) argued that more precise knowledge about specific contributions would help both organizations and employers to understand and manage psychological contracts. Whether psychological contracts are more *general* in nature, for instance pay and promotion in exchange for effort and loyalty, or rather *specific*, that is pay for effort and promotion for loyalty, would clearly change the way organizations have to react to distorted contracts.

N. Conway and Briner (2005) advocate more specificity, but this somehow conflicts with their own complaint that the focus on core items neglects variety in exchanges (p. 32). Given the broad nature of the psychological contract, it is practically inevitable to refer to a reduced set of items just by empirical constraints. Also, a more specific approach would correspond to an understanding of the psychological contract as a formative rather than a reflective construct (Edwards & Bagozzi, 2000), in contrast to previous conceptualizations.

Several attempts were made to specify psychological contract contents. For instance, Herriot et al. (1997) derived 12 categories of organization obligations and 7 categories of employee obligations, out of two samples with $n_1 = 184$ U. K. employees and $n_2 = 184$ U. K. managers. Organization obligations were: Training, fairness, needs, consult, discretion, humanity, recognition, environment, justice, pay, benefits, and security. Employee obligations were: Hours, work, honesty, loyalty, property, self-presentation, flexibility.

Other authors (e. g., N. Conway & Briner, 2005; Coyle-Shapiro & Parzefall, 2008; Hui et al., 2004) have suggested referring to existing frameworks, for example the 6 classes provided by Foa and Foa (1980): love, services, goods, money, information, status. Yet another attempt was provided by Janssens, Sels, and Van Den Brande (2003), suggesting six different contracts, namely «loyal, instrumental, weak, unattached, investing and strong» (p. 1373) psychological contracts.

However, such specific approaches are hardly compatible with the generalizability of the mental model view. Referring to social exchange theory sheds some light on the problem. Blau (1964) mainly distinguishes between economic and social exchange, with the «basic and most crucial distinction» being the degree of specificity (p. 93). This is perfectly in line with Rousseau (1989; Rousseau, 1990) who provided evidence for two forms of contracts. The transactional contract involves the exchange of economic extrinsic obligations. In contrast, the relational contract includes both economic and non-economic, socio-emotional, intrinsic obligations (see fig. 1, Rousseau, 1990, p. 390). Thus the transactional/relational distinction in psychological contracts introduced by Rousseau reflects the exchanges identified in social exchange theory (Blau, 1964). The color code introduced at this point serves throughout the dissertation to indicate these and similar parallels.

Despite the parallelism between social exchange theory and the psychological contract construct, a third inducement was neglected for a long time. Namely, Blau (1964) suggested «ideological awards» (p. 239) as clear inducements, distinct from those in economic or social exchanges. Only recently have Thompson and Bunderson (2003) proposed an expansion of the psychological contract by introducing a third contract dimension they call the ideology-infused contract. Introducing the term *currency* is helpful

to understanding Thompson and Bunderson's expansion. In their view, the currency constitutes the object of exchange within the psychological contract.

In terms of Thompson and Bunderson, the transactional contract implies the exchange of *economic currency*, for example time, money, and presumably training as a form of human capital (Lazear, 2009). In contrast, the relational contract is subject to the exchange of *socio-emotional currency*, which comprises feelings or relations. Although these exchanges differ in tangibility, they have one thing in common. In either case, the beneficiary is the employee – and, due to the (perceived, not necessarily real) mutual exchange, the employer. In contrast, the salient beneficiary of an exchange in *ideological currency* is not the self or the organization, but rather «society, some segment thereof, or an intangible principle» (Thompson & Bunderson, 2003, p. 575).

The corresponding exchange has been described typical for covenantal[33] organizations (Graham & Organ, 1993) and yields some insights when applied to the psychological contract. Graham and Organ (1993) compare covenantal organizations to social exchange- and transactional organizations. According to their comparison, such organizations differ in terms of the motivational paradigm, inclusiveness, strength of culture, and other characteristics (p. 485), paralleling the three-dimensional psychological contract suggested by Thompson and Bunderson (2003).

Bingham (2005), using a sample of $n = 371$ employees from 4 different firms and industries, first showed that transactional, relational, and ideology-infused contracts are distinct and well defined dimensions. A qualitative study by Bunderson and Thompson (2009) confirmed the existence of the ideology-infused contract and added to the literature by revealing its ambivalent character. Concerns of generalizability notwithstanding – they relied on a sample of U. S. zoo keepers – there was evidence that the expected benefits of such a contract, for example greater feelings of meaningfulness, came at the price of higher vulnerability to potential exploitation and heightened moral expectations, increasing vigilance and suspicion in the employment relationship (Bunderson & Thompson, 2009, p. 52).

It is conceivable that ideology-infused contracts are of outstanding importance in the military context. In Armed Forces and Society, there is an ongoing dispute on whether cohesion within the troop or belief in a higher cause influences combat morale more strongly (Biehl, 2006, p. 300). Translated into psychological contract terms, the question is whether the exchange of socio-emotional currency or the exchange of ideological currency has the higher impact.

Quantitative studies that include the ideology-infused psychological contract have only recently begun to emerge. For example, Bal and Vink (2011) found evidence for the distinctiveness of employer ideological obligations and employee ideological obligations, which constitute separate factors (p. 2803). Thus, Bal and Vink applied a bilateral and not a subjective concept of psychological contracts. Central to this dissertation, Vantilborgh et al. (2014) studied the impact of relational and ideology-infused psychological contract on work effort. Also recently, Bingham et al. (2014) investigated social hierarchies

33 Regarding the military setting of the present study, it is important to distinguish this notion from the *moral contract* between the people and the armed forces, which has been designated as the *military covenant* in recent British defense policy debate (e. g., McCartney, 2010). Nevertheless, it is interesting to see how the same terminology, which is actually a Biblical (Jer. 31:30-32) expression, is used to describe the relationship between Armed Forces and Society.

in a sample of $n = 54$ employees. This is, at time, the only quantitative study involving all three psychological contract layers, a part from Bingham's (2005) scale development of the ideology-infused contract. Consequently, ideology-infused contracts have not been applied to a military setting at all.

Before setting up my central proposition 4.1, the terms have to be clarified. *Ideology* often has a negative connotation (Nöth, 1995, p. 377), especially in the military context. The term «ideational» is less common, but has been used to translate Hegel's «Überzeugungsgemeinschaft» as *ideational community* (Goldstein, 2005, p. 79), fully capturing the meaning of Thompson and Bunderson (2003).[34] Therefore, I replace the somewhat problematic term *ideology-infused* contract with the less ambiguous term of the *ideational* contract throughout the dissertation. This leads to the terminology as summarized in table 4.2. In that table, the color code introduced above is again made apparent. Later, the table will be extended to other concepts, highlighting further parallels.

Table 4.2: Summary of the terminology and color code used to describe the psychological contract. An extended form including similar constructs can be found in table 4.24.

Concept	Dimension			Source
	blue	red	green	
exchanged currency	economic	socio-emotional	ideological	Thompson and Bunderson (2003)
contract dimension	transactional	relational	ideational	Thompson and Bunderson (2003)
contract types	transactional	social exchange	covenantal	Graham and Organ (1993)

Referring to the adapted terminology, I set up

> **Proposition 4.1:** Psychological contracts comprise transactional, relational, and ideational contents.

Before this proposition 4.1 can be translated in testable hypotheses, the structure of the psychological contract has to be derived first.

4.2.6 The structure of the psychological contract

In the discussion of the conceptual shifts initiated by Rousseau (1990), the importance of contract breach has already been made apparent (see chapter 4.2.4). However, the concept of breach and violation has been developed further. It has been shown that an excess of promises represents another form of breach. Robinson (1996) suggests that overfulfillment may possibly lead to lower reactions than underfulfillment.

Schurer Lambert et al. (2003) have separated deficiency, fulfillment and excess, interpreting «promised inducements, delivered inducements, and outcomes [as] three distinct constructs» (p. 902). Studying psychological contracts beyond breach and violation involves the positive analogue of employee-organization relationships (Shore et al., 2004, p. 350), which has not been dealt with sufficiently. Therefore,

34 This, however, is without attributing Hegelian philosophy to the authors.

I adhere to this more comprehensive approach, acknowledging the full range from underfulfillment to overfulfillment. These terms are crucial to the analysis and are therefore set out in the following

Definition 4.2: The state of the psychological contract (or parts of) it corresponds to
- *underfulfillment* when *high* promised inducements meet with *low* delivered inducements;
- *high absolute fulfillment* when *high* promised inducements meet with *high* delivered inducements;
- *overfulfillment* when *low* promised inducements meet with *high* delivered inducements;
- *low absolute fulfillment* when *low* promised inducements meet with *low* delivered inducements.

The term *perceived* is suppressed in definition 4.2. This specification is no longer needed, since definition 4.1 emphasized that the psychological contract is shaped by perceptions. However, it may be helpful to use the term *perceived* promised inducements at times, to emphasize the filter of perceptions. Figure 4.1 illustrates definition 4.2.

With definition 4.2, the terminology has been defined to establish the first hypothesis. According to proposition 4.1, the psychological contract comprises transactional, relational, and ideational contents. Therefore, in combination with the methodological distinction between promised inducements, delivered inducements and the fulfillment degree (Schurer Lambert et al., 2003), the first triple of hypotheses is

Hypothesis 4.1:
a. Transactional, relational, and ideational promised inducements are separable layers of the psychological contract.
b. Transactional, relational, and ideational fulfillment are separable layers of the psychological contract.
c. Transactional, relational, and ideational delivered inducements are separable layers of the psychological contract.

The approach chosen demands an adequate method, namely polynomial regression analysis (PRA; Edwards, 1994; Edwards & Parry, 1993), which is treated in detail in chapter 4.3.1. Despite its conceptual appeal, this approach has been used only sporadicly[35] (e. g., Montes & Irving, 2008; Vantilborgh et al., 2014). However, PRA is needed to overcome the flaws of difference scores, the alternative to identify promises and their fulfillment simultaneously.

35 According to Edwards, his work is mostly cited in statements such as «Although Edwards (1994) showed important shortcomings of difference measures, we use them anyway» (Personal communication, on the occasion of a methodology course held in Lausanne/Switzerland, January 8th, 2016).

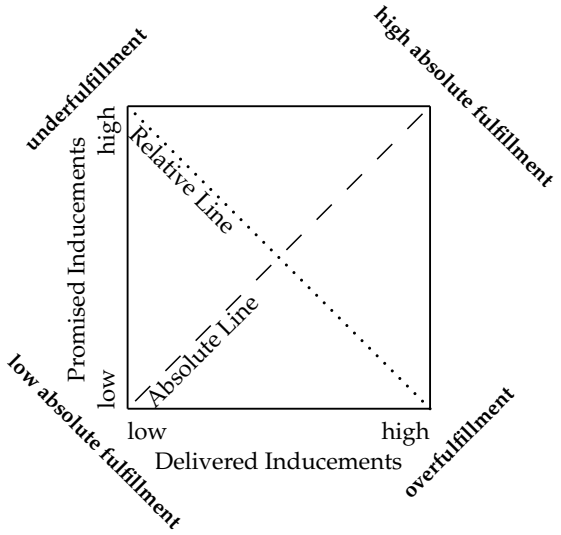

Figure 4.1: In the literature, the *relative* and the *absolute* line are called the *breach* and *fulfillment* line, respectively (e. g., Schurer Lambert et al., 2003, p. 1373). However, this terminology is incongruent insofar as fulfillment is constant along the fulfillment line, but breach varies along the breach line. Therefore, the alternative terminology has been proposed.

The fact that these layers are separable does not yet answer the question about the dimensional structure of the construct. As illustrated in figure 4.2, it is theoretically conceivable that these separable layers exist, but that they may be aligned in one single dimension or, that they may vary independently.

The literature is ambivalent regarding whether transactional and relational contracts are the opposite ends of an unidimensional scale or are rather independent dimensions. The indications of earlier studies are inconsistent in this regard, including Rousseau's (1990) own work. Although she referred to Macneil's (1985) interpretation of both types of contracts as anchors at the opposite ends of a contract continuum (Rousseau, 1990, p. 391), in the same article she distinguished between transactional and relational obligations (p. 395). Later, Rousseau and Wade-Benzoni (1994) explicitly allowed for a combination of relational (e. g., open-ended) and transactional (e. g., limited) contract characteristics, yielding *balanced* contracts and, the opposite combination, *transitional* contracts. These «essentially [constitute] a breakdown in contracts» (p. 468) since the transactional *short-term* characteristic is combined with the relational *weak* specificity.

Both perspectives – the bipolar continuum as well as the independent dimension approach – have been pursued by scholars. For example, Millward and Hopkins (1998) hypothesized that «the higher the relational orientation, the lower the transactional orientation, and vice versa» (p. 1535). In doing so, they referred to what «Rousseau and her colleagues [...] proposed» (p. 1351) and found that their hypothesis was supported by means of a strongly significant, negative correlation ($r = -.61, p \simeq 0$) between both orientations, and concluding that these contracts «represent opposite ends of a bipolar continuum» (p. 1542). Contrary to these findings, Hui et al. (2004) found significant positive correlations

($r = .28, p < .01$) between the transactional and the relational orientation – including the balanced contract, but omitting transitional contracts.

Based on the analogy between psychological contracts and social exchange theory (with the transactional contract reflecting economic, and the relational contract reflecting social exchange) the mental model view corroborates the independent dimension approach. In social exchange theory, economic exchanges do not exclude social exchanges, but both can be present in the same relationship (Blau, 1964). Thus a mental model, reflecting the structure of the original content (Johnson-Laird, 2004), is unlikely to represent these exchanges in a bipolar fashion. Rather, a psychological contract may involve transactional or relational contents, or both, or neither (Rousseau & Wade-Benzoni, 1994).

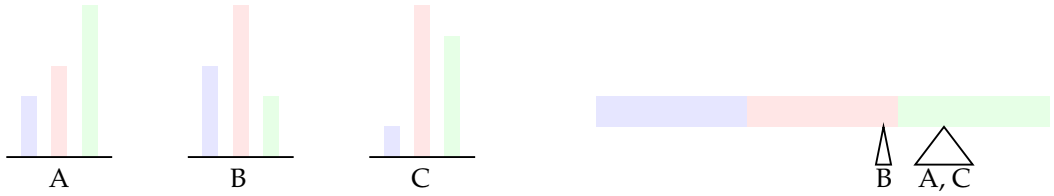

Figure 4.2: On the left hand side, three examples illustrate possible configurations when the psychological contract is considered to be multidimensional. On the right hand side, the same configurations are collapsed onto one single dimension, implying a loss of information.

A bipolar interpretation would also run counter to Thompson and Bunderson's (2003) understanding of exchanged currencies. There is no obvious reason why the exchange of one specific currency should compromise the exchange of another currency. Rather, these layers may be independent or even correlate positively. This means that the perceived relationship based on one currency is likely to be attended to some extent by the perception of the relationship based on another currency, to avoid cognitive dissonance (see Festinger, 1962).

To sum up, the mental model view suggests the following

Hypothesis 4.2:

a. Transactional, relational and ideational promised inducements of the psychological contract correlate positively pairwise.
b. Transactional, relational and ideational fulfillment of the psychological contract correlate positively pairwise.
c. Transactional, relational and ideational delivered inducements of the psychological contract correlate positively pairwise.

4.2.7 Psychological contracts in different groups

Psychological contract studies adhering to the mental model view[36] indicate shared cognitive structures of peer groups, with regard to interpretation and behavior (Louis & Sutton, 1991). Consequently, Coyle-Shapiro and Parzefall (2008) call for examination of how individuals align their psychological contract within a given social group. Such social systems can be distinguished in the Swiss Armed Forces, since senior active reservists, military professionals and civilian employees have distinct relationships with the organization (see chapter 2.1.1). Such differences are presumably layer-specific.

The transactional contract is about economic exchange. With respect to this, I expect senior active reservists to differ from military professionals and civilian employees. Employees are formally employed by the Swiss Armed Forces, which usually implies an economic dependency. In contrast, senior active reservists correspond to the *citizen in uniform* (Frhr. von Rosen, 2006), which is not a relationship primarily based on economic exchange. In particular, Swiss senior active reservists receive their pay-check from their civilian employer even when in service and therefore, transactional bindings towards the Swiss Armed Forces are expected to be significantly lower. Yet I do not expect that the transactional contract disappears completely, as Vantilborgh et al. (2014) has suggested for volunteers. According to the psychological contract inventory (Rousseau, 2000), transactional contracts also involve non-monetary inducements. This becomes apparent regarding the psychological contract items used in the study (see appendix A.1).

The relational psychological contract is about socio-emotional exchange. In these terms, senior active reservists are likely less integrated than military professionals, merely by the fact that they spend way less time within the organization. For instance, staff officers are restricted to serving no more than 75 days in two years (MDV, 2014, Art. 9a; further education and cases of emergency excluded), whereas military professionals work year round. The same holds true for civilian employees. However, it seems plausible that civilian employees are less confined to the organization than military professionals, for different reasons. Their average working time is usually fixed at 41.5 hours/week (BPV, 2016, Art. 64), whereas military professionals work «according to the needs of the service» (V Mil Pers, 2016, Art. 19, translation by the author). Gutknecht (2007, p. 74) reports average workloads from 55.60 hours/week (COL) to 60.55 hours/week (CPT) for career officers, and from 53.10 hours/week (WO) to 54.53 hours/week (SWO) for career NCOs.[37] In addition, other factors may contribute as well to a stronger relational psychological contract of military professionals, when compared to civilian employees. Wearing a uniform leads to identification with the organization (Akerlof & Kranton, 2005), and as an influence type (Kelman, 1958), identification corresponds to the relational contract (Thompson & Bunderson, 2003). This argument, however, does likely not apply to senior active reservists. They wear uniforms too; but as mentioned above, only for relatively short times in a year.

36 Louis and Sutton (1991) refer to the term «cognitive modes», whereas Coyle-Shapiro and Parzefall (2008) refer to «schemata». Rousseau (2001) uses the terms «schema» and «mental model» interchangeably and more generally, scholars are not unanimous as to whether these concepts are different or not (Petersitzke, 2009).

37 In chapter 3.6.3, figure 2.1 provides self-reported working hours, revealing substantial differences between wage brackets, and confirming Gutknecht's (2007) findings.

The ideational psychological contract is about ideological exchange. As explained in chapter 4.2.5, the beneficiary of an ideological exchange is not the individual or the organisation, but society or some intangible principle (Thompson & Bunderson, 2003). The Swiss Armed Forces' main service regulation, the «Dienstreglement 04», repeatedly mentions the necessity of serving «at the risk of one's life» (DR 04, 2015, no. 8, 9, 32). Legally, this is valid for senior active reservists and military professionals (DR 04, 2015, no. 2), but not for civilian employees. This claim has been described as «unlimited liability», and is a characteristic of the «military covenant» (Mileham, 2010). Only covenantal agreements take obligations beyond self-interest (Graham & Organ, 1993, pp. 490–491), including a motivational paradigm based on values (p. 485, table 1). It seems however reasonable to assume that civilian employees are less bound by ideational contracts, unless they are actively incorporated as reservists. In contrast, I expect civilian employees without reservist status to have weaker ideational psychological contracts.

To summarize, this yields

Hypothesis 4.3:

a. Transactional promised inducements are significantly *weaker* among senior active reservists, as compared to military professionals and to civilian employees of the Swiss Armed Forces.
b. Relational promised inducements are significantly *stronger* among military professionals, as compared to civilian employees and to senior active reservists of the Swiss Armed Forces.
c. i) Ideational promised inducements are significantly *weaker* among civilian employees, as compared to senior active reservists and military professionals of the Swiss Armed Forces.
   ii) Ideational promised inducements are significantly *stronger* among civilian employees who are active reservists, as compared to civilian employees, who are not.

4.2.8 Outcomes of the psychological contract

In the present chapter 4, I relate psychological contracts to *work satisfaction*, *turnover intention*, and *work effort*. I chose these outcomes for three reasons. First, they are relevant both to the organization and the individual. Second, their associations with the psychological contract are known with regard to some layers, but so far no study has related any of these outcomes to all three layers simultaneously. Third, I want to test predictions about the structure and apply a new measurement strategy to the psychological contract. Therefore, well-researched (rather than extraordinary) outcome variables are suitable. In this vein, work effort (De Cooman et al., 2009) makes up an exception, but it is the only outcome variable related so far to ideational fulfillment by means of PRA (Vantilborgh et al., 2014). Technical description of the three outcome variables is relegated to chapter 3.6.3, since other chapters refer to them as well. The

next three paragraphs provide previous findings of the chosen outcome variables in the psychological contract literature.

Zhao et al.'s (2007) meta-analysis found for $k = 28$ studies with $n = 14\,252$ participants that breach is strongly correlated to *work satisfaction*, $\hat{\rho} = -.54$. $k = 3$ studies with $n = 7\,335$ participants allowed for differentiation between transactional and relational contracts, showing that transactional breach had significantly ($z = 5.69$, $p < .01$) smaller effect sizes ($\hat{\rho} = -.44$) on job satisfaction than relational breach ($\hat{\rho} = -.53$). Beyond this, Schurer Lambert et al. (2003) provide an extended view (p. 919) of the breach-work satisfaction relationship. Using response surface methodology (Edwards & Parry, 1993), Schurer Lambert et al. showed that this relationship is curvilinear in psychological contract contents were excess may be uncomfortable, too, for example in the case of *task variety*. However, so far no one has related work satisfaction to the ideational contract.

Zhao et al.'s (2007) meta-analysis found for $k = 22$ studies with $n = 6\,268$ participants that breach is strongly correlated with *turnover intention*, $\hat{\rho} = .42$. Transactional breach showed again significantly ($z = 2.42$, $p < .01$) smaller effects ($\hat{\rho} = .17$) on turnover intention than *relational* contract breach ($\hat{\rho} = .33$). Similar to the first outcome variable, until today no one has studied the impact of ideational contract on turnover intentions.

Vantilborgh et al. (2014) studied the effect of relational and ideational psychological contract fulfillment on *work effort* in a sample of $n = 299$ volunteers from 71 non-profit organizations. In line with their hypotheses, they found that not only overfulfillment, but also underfulfillment of the ideational contract leads to an increase in work effort. This ∪-shape of the fulfillment-effort relationship corresponds to the suggestions of Thompson and Bunderson (2003). In ideational contracts, the beneficiary is not the organization, but a higher cause. Thus compensation, rather than reciprocity or even retaliation, is the result when the employer does not contribute as promised.

Later in this dissertation, chapter 5 focusses on *organizational* and *vocational commitment* as outcomes of the psychological contract. Finally, chapter 6 introduces *work orientations* as an antecedent rather than an outcome of the psychological contract. However, the cross-sectional design of the present study makes a proper distinction between outcomes and antecedents impossible (see chapter 3.9.1).

With 3 layers of the psychological contract, 3 subsamples, 3 outcome variables, and 3 elements (i. e., promised and delivered inducements, and fulfillment), a total of $3^4 = 81$ hypotheses is technically possible, which is unsuitable for a comprehensible analysis. Rather, each outcome variable is reflected for all three layers, and exceptions are noted only where apparent. This is done twice, namely along the *relative* and the *absolute* line (see figure 4.1).

4.2.8.1 Relative fulfillment. Exchanges entail benefits to those engaged (Blau, 1964) and therefore, it seems likely that underfulfillment of psychological contracts disappoints both employees and senior active reservists, leading to lower satisfaction with their paid or voluntary work (subsumed here under *work satisfaction*). On the other hand, receiving more than was promised in the perception of the

individual, likely increases satisfaction. Furthermore, some saturation effect is likely for all three layers, due to the «declining marginal utility of additional benefits» (Blau, 1964, p. 90).

With regard to differences between layers, two-factor theory (Herzberg, Mausner, & Snyderman, 1959) can be applied when describing antecedents of work satisfaction. Contents of the transactional psychological contract correspond to hygiene factors, whereas relational contracts focus on motivators (Herriot et al., 1997). Thus I suggest that relational fulfillment has a stronger impact on work satisfaction than transactional fulfillment. With regard to ideational fulfillment, covenantal relations imply intrinsic motivation (Van Dyne, Graham, & Dienesch, 1994, p. 768). However, the focus of the ideational contract is not the organization or the self (Thompson & Bunderson, 2003). Thus, fulfillment of the ideational contract may likely have a less direct impact on satisfaction than relational fulfillment, which focusses on the socio-emotional exchange between the organization and the individual and is thus associated with the affective nature of the relationship to the organization. Therefore, I expect relational fulfillment to have a stronger impact on work satisfaction than the other two layers. Overall, I suggest

Hypothesis 4.4:

a. Higher transactional fulfillment leads to higher work satisfaction, with diminishing increase for overfulfillment.
b. i) Higher relational fulfillment leads to higher work satisfaction, with diminishing increase for overfulfillment.
   ii) The impact of relational fulfillment on work satisfaction is stronger than the impact of the other layers.
c. Higher ideational fulfillment leads to higher work satisfaction, with diminishing increase for overfulfillment.

The next outcome to be investigated is *turnover intention*. Given that turnover intention was not measured for senior active reservists (see chapter 3.6.3), only employees were studied with regard to this outcome. In a reverse analogy to work satisfaction, transactional and relational fulfillment decreases turnover intentions. Moreover, most studies have shown that the effect is stronger for relational than for transactional contracts (Zhao et al., 2007). However, in the case of ideational contracts, the argument is more delicate. The first assumption would be that a breach leads to higher turnover intentions. However, an underfulfilled ideational contract could likely urge a member of the organization to stay, given that this is his only chance to contribute to the shared «passion, cause and/or mission» (Thompson and Bunderson, 2003, p. 575; Bunderson and Thompson, 2009). However, for military professionals who are usually (and civilian employees who are often) incorporated as senior active reservists in addition to their employment (see chapter 2.1.1), reserve service presents a fallback option. Even after withdrawing, employees may continue to contribute via the Swiss Armed Forces, as long as they are active reservists. However, for civilian employees without active reserve status, this is not an alternative. Rather, civilian employees may want to stay because of overfulfillment of the ideational contract, or because of – and not

despite – underfulfillment of the ideational contract. In both cases, compensation rather than retaliation seems adequate, given that the beneficiary of ideational contracts is not the organization.

Overall, I expect a ∩-shape for civilian employees without reservist status, because they lack a fallback option, for ideational fulfillment. For all other individuals and layers, I expect a curvilinear relationship, with an attenuating effect for overfulfillment. Together, this leads to

Hypothesis 4.5:

a. Higher transactional fulfillment leads to lower turnover intention.
b. i) Higher relational fulfillment leads to lower turnover intention, with diminishing increase for overfulfillment.
   ii) The overall effect is stronger than in the case of transactional fulfillment.
c. i) Higher ideational fulfillment leads to lower turnover intention in the case of military professionals and civilian employees with active reserve status, with diminishing increase for overfulfillment.
   ii) Both ideational underfulfillment and overfulfillment leads to lower turnover intention in the case of civilian employees without active reserve status.

Based on reciprocity, *work effort* should generally increase with higher psychological contract fulfillment. Again, I expect some differences with respect to the layers. *Work effort* can be «situated between actual motivation and performance» (De Cooman et al., 2009, p. 266). According to prospect theory (Kahneman & Tversky, 1979), incentives underlie marginal utility and loss aversion. Thus, I expect the effect of underfulfillment to be stronger than the effect of overfulfillment, yielding a concave, increasing relationship in the case of transactional contract. However, since senior active reservists receive no direct economic reward for their service (see chapter 2.1.2.3), transactional fulfillment should lead to a smaller effect on work effort in the corresponding subsample.

The reasoning of prospect theory can be transferred to relational contracts; however intrinsic motivation is a stronger incentive than extrinsic motivation (Deci, 1971; Vallerand, 1997; Bénabou & Tirole, 2003), and transactional psychological contracts have a more extrinsic focus, whereas relational contracts are more intrinsic (Rousseau, 1990). Thus, for relational contracts, a similarly shaped, but stronger effect is expected, when compared to transactional contracts.

I expect the ideational psychological contract again to follow its own rules. Individuals that feel the higher goal has been compromised by the organization may tend to compensate this (Bunderson & Thompson, 2009). Consequently, I expect a ∪-shaped curve for the effect of ideational fulfillment on work effort, similar to Vantilborgh et al.'s (2014) finding for the same relationship in their sample of $n = 299$ volunteers. In addition, the ideational contract should have an even stronger impact on work effort than the other layers, assuming that it reflects stronger involvement than the other contracts (Thompson & Bunderson, 2003). However, this is likely to be buffered by the proposed curvilinear effect. Thus, I do not expect ideational effects to exceed those of the transactional and relational layers. I therefore propose

Hypothesis 4.6:

a. i) Higher transactional fulfillment leads to higher work effort, with diminishing increase for overfulfillment.
   ii) The overall effect of the transactional contract on work effort is weaker for senior active reservists than for both military and civilian employees.

b. i) Higher relational fulfillment leads to higher work effort, with diminishing increase for overfulfillment.
   ii) The overall effect of the relational contract on work effort is stronger than the effect of the transactional contract.

c. Both ideational underfulfillment and overfulfillment lead to higher work effort.

4.2.8.2 Absolute fulfillment. For the transactional and the relational psychological contract, the «belief in an obligation of reciprocity» (Rousseau, 1989, p. 125) inherent in psychological contracts implies that stronger promised inducements from the employer lead to stronger effects on the employee's side. Vantilborgh et al. (2014) argue that the same is to be expected for ideational contracts. This reasoning applies to turnover intention and work effort: promises may keep someone from forming turnover intentions, although the fulfillment may account for more variance in the long term. Similarly, I expect people to reciprocate on the basis of the promised inducements, although – again in the long term – underfulfillment may undo the effect of promises. In contrast, it seems unlikely that promises alone increase work satisfaction. Because null effects are usually not hypothesized, I thus suggest

Hypothesis 4.7:

a. Higher levels of economic promised inducements lead to lower turnover intention and higher work effort.
b. Higher levels of socio-emotional promised inducements lead to lower turnover intention and higher work effort.
c. Higher levels of ideological promised inducements lead to lower turnover intention and higher work effort.

Similar to hypotheses 4.4 to 4.6, I test hypothesis 4.7 for the full sample with respect to work effort and work satisfaction, but for employees only with respect to turnover intention.

4.3 Empirical Methods

Following Schurer Lambert et al. (2003), I distinguish between promised inducements P, delivered inducements D, and fulfillment F as distinctive structural elements of the psychological contract. Recent operationalizations have defined fulfillment as a function of promises and deliveries, that is $F(P, D)$ (e. g., Schurer Lambert et al., 2003; Montes & Irving, 2008; Vantilborgh et al., 2014). These studies relied on polynomial regression analysis (PRA; Edwards & Parry, 1993; Edwards, 1994). This is superior to difference scores as applied in older studies, where fulfillment was calculated as the arithmetic difference of promises and fulfillments (e. g., Robinson, 1996). Shown graphically, that is in terms of figure 4.1, difference scores collapse two dimensions into one dimension, inevitably implying a loss of information. In contrast, PRA allows for taking into account both dimensions simultaneously, but separately.

Applying PRA to the psychological contract has been criticized for not directly capturing contract breach (N. Conway et al., 2011, p. 268). Additionally, Zhao et al. (2007) reported that global measures, measuring fulfillment directly, have had stronger impacts on outcome variables than composite measures, especially in the case of work satisfaction ($z = 2.99,\ p < .01$), for $k = 14$, 17 studies with $n = 4\,173,\ 12\,141$ participants for global and composite measures, respectively. The same effect was found for organizational commitment ($z = 3.81,\ p < .01$; $k = 7,\ 14$; $n = 3\,404,\ 10\,664$).

Measurement of all three elements P, D, and F would lead to a severe over-identification of the psychological contract, as an impressive paper by Edwards, Cable, Williamson, Lambert, and Shipp (2006) on person-environment fit suggests. Edwards et al.'s crucial finding is that relationships between the different elements «deviated markedly from the conceptual logic» (p. 817). Combined, the perceived person and the perceived environment only explained 17% to 37% of the discrepancy between person and environment, which was measured separately in the same questionnaire. Additionally, fit was assessed, but even less associated to discrepancy ($.06 \leq R^2 \leq .18$). This example underscores the importance of choosing variables.

To profit both from direct fulfillment measures (N. Conway et al., 2011; Zhao et al., 2007) and from PRA, I chose to measure promised inducements P and fulfillment F and by doing so derive delivered inducements D as a function of the two measured elements, $D(P, F)$. This choice is also consistent with the hypotheses set up in chapter 4.2: Hypotheses 4.1.a., 4.2.a., 4.3 and 4.7 all refer to promised inducements (P), whereas hypotheses 4.1.b., 4.2.b., and hypotheses 4.4 to 4.6 refer to fulfillment (F). In contrast, delivered inducements D are addressed directly only in hypotheses 4.1.c. and 4.2.c. Looking beyond the present chapter 4, chapter 5 will relate organizational commitment to fulfillment F, and chapter 6 will relate work orientations to promised inducements P. This further corroborates the choice of P and F as the constructs to be measured directly. In chapter 4.3.1, the P and F items are chosen accordingly.

In chapter 4.3.2, I adapt Schurer Lambert et al.'s (2003) approach to my choice of variables. Additionally, I transform the regression equations derived back into Schurer Lambert et al.'s (2003) conceptualization, allowing for a direct comparison of results. In addition, I suggest an alternative transformation,

based on a proposition of Robinson (1996) and in application of Kahneman and Tversky's (1979) prospect theory.

4.3.1 Measurements

The items for measuring promised inducements P and fulfillment F of the psychological contract in 3 dimensions were taken from Bingham (2005),[38] who measured both P and F, but did not apply PRA. Although not published in a peer-reviewed journal, the measurement «has demonstrated excellent psychometric characteristics in terms of reliability and factor structure» (Vantilborgh et al., 2014, p. 222). Building solely on Thompson and Bunderson's (2003) suggestion, Bingham developed the ideational items, but used transactional and relational items from the psychological contract inventory (Rousseau, 2000).

Bingham's (2005) original scale consisted of 5 transactional, 6 relational, and 7 ideational items for promised inducements P and 6 transactional, 5 relational, and 7 ideational items for fulfillment F. Lengthy surveys may cause a great deal of inattention and provoke careless response behavior (Meade & Craig, 2012). On the other hand, at least three to five items per factor are needed for proper factor analysis (MacCallum, Widaman, Zhang, & Hong, 1999). Given that the psychological contract is the core construct of the dissertation, the upper boundary seems more appropriate. Thus, I deleted items to have 5 remaining per dimension, both for promises and fulfillment.

Based on standardized loadings of CFA and correspondence between P and F items, the P_{relat} item «provide steady employment» (no counterpart in F, second-lowest loading) and P_{ideat} items «create internal practices and policies that advance [ACME]'s ideals» and «stand behind our corporate ideology, even if it requires a financial sacrifice» (lowest and second-lowest loading) were removed. The full list of English items for perceived promised inducements P, in the variant for employees, can be found in table 4.13. The full list of items in German, French and Italian for both employees and senior active reservists can be found in appendix A.1.1.

According to similar criteria, the F_{trans} item «a job for a specified time period» (second-lowest loading, missing counterpart in P) and the F_{ideat} items «support of our corporate ideology, even if it requires a financial sacrifice» and «company culture that promotes our corporate principles» (second-lowest and lowest loading) were dropped. The full list of English items for perceived fulfillment F, in the variant of employees, can be found in table 4.14. The full list of items in German, French and Italian for both employees and senior active reservists can be found in appendix A.1.2.

Bingham (2005) introduced two framing questions asked right before the ideational item, namely «To what extent do you believe that your organization possesses a mission, cause, or set of enduring principles that extend beyond financial objectives?», to be rated on a 5-point Likert scale, and «In a few words, describe your organization's cause, mission, or set of enduring principles:» as an open question (p. 145). Such an approach seems reasonable because otherwise, the items could likely have

38 In this source, promised inducements are called *contract form*, as opposed to *contract fulfillment*.

been wrongly targeted. For example, «I feel ACME is obligated to contribute to the stated cause» or «I feel ACME is obligated to be dedicated to ACME's mission» (p. 145) could be understood in relation to the conventional activities of the company. Given that the Swiss Armed Forces does not pursue financial objectives, I used «constitutional missions» instead. German, French, and Italian translations of both framing questions are provided in appendix A.1.3.

Translation of the items merits special attention. According to Gerber, Grote, Geiser, and Raeder (2012, p. 203), «[i]n the Central European language context [...] obligations are considered to be part of legal contracts» (p. 204). However, Gerber et al.'s proposed remedy of replacing obligations with *expectations* contradicts Rousseau's (1998) conceptualization (see chapter 4.2.2). Thus, the attenuation «ich denke / je pense / ritengo» is integrated instead, corresponding to Bingham's (2005) «I feel...».

Pretests revealed that the triple formulation «cause, mission, or set of enduring principles» created uncertainty among pre-testers in all three languages, especially because the items also referred to different formulations. Thus, in discussion with French and Italian translators, the formulation was reduced to *cause*, which also differentiates from *mission* and *principles*, both terms frequently used in military routines and thus potentially encumbered by these alternative meanings. Consequently, all ideational items were adapted targeting *cause* only.

The measurements of the outcome variables *work effort*, *work satisfaction* and *turnover intention* are explained in detail in chapter 3.6.3, because they are common to the whole dissertation. There, descriptive statistics are also included. Similarly, these details for all control variables can be found in chapter 3.6.4. Appendix A.4 provides the full list of items in German, French and Italian for both employees and senior active reservists.

4.3.2 Modeling

Regression equations needed to test hypotheses 4.6 to 4.7 were established in three variants. First, I set up the polynomial regression equation (Edwards & Parry, 1993) in fulfillment F and promised inducements P, the variable set that was argued in chapter 4.3.1 to be more accurate. This is the direct approach used for testing hypotheses 4.4 to 4.7. The second step was to transform the equation into the canonical variable set of promised P and delivered inducements D (Schurer Lambert et al., 2003). Third, I propose an additional transformation, relying on prospect theory (Kahneman & Tversky, 1979).

Control terms $\sum_i b_i C_i$ are omitted throughout this chapter, without impact on the result, but simplifying representation. For the same reason, one single outcome variable Z is used, to be replaced later by WS (work satisfaction), TI (turnover intention), and WE (work effort), subject to the different hypotheses.

PRA includes both exponentiated terms of the variables of interest up to the a chosen order and the corresponding interaction terms (Edwards & Parry, 1993). Curvilinearity in hypotheses 4.4 to 4.6 can be described in quadratic terms. Thus, terms up the 2$^{\text{nd}}$ order are included:

$$Z = \widetilde{b}_0 + \widetilde{b}_1 F + \widetilde{b}_2 P + \widetilde{b}_3 F^2 + \widetilde{b}_4 FP + \widetilde{b}_5 P^2 + e\,. \tag{4.1}$$

The notation $\widetilde{b}_i$ signalizes that coefficients deviate from those in the literature (b_i), referring to a different set of variables. For hypotheses testing, two special lines on the surface 4.1 are of interest: on the one hand, the dependency of the outcome variable Z along the absolute line may be studied, where the contract is exactly fulfilled ($F = 0$) and only its absolute level changes. On the other hand, changes in Z due to a relative change of fulfillment, with $P = 0$, potentially matter.

In the case of exact fulfillment, that is $F = 0$, equation (4.1) reduces to

$$Z = \widetilde{b}_0 + \widetilde{b}_2 P + \widetilde{b}_5 P^2 + e\,. \tag{4.2}$$

In this equation, $\widetilde{b}_2$ corresponds to the slope of P along the absolute line, and $\widetilde{b}_5$ to the curvature.

In the perpendicular case, where $P = 0$, we have

$$Z = \widetilde{b}_0 + \widetilde{b}_1 F + \widetilde{b}_3 F^2 + e\,, \tag{4.3}$$

with $\widetilde{b}_1$ the slope and $\widetilde{b}_2$ the curvature in F along the relative line. Equations (4.2) and (4.3) represent the direct approach, which I use for hypothesis testing. From these I derive two alternatives.

As explained in chapter 4.3.1, the variable set P, F deviates from the choice P, D in the literature (Schurer Lambert et al., 2003; Montes & Irving, 2008; Vantilborgh et al., 2014). To compare the two approaches, F can be replaced by some representation of P and D. Given that fulfillment can be understood as the difference between delivered and promised inducements, it follows $F = D - P$, but the range of the variables $F, P \in [-2, 2]$ has to be taken into account. Thus, to keep D within the same range, I rescale, and the transformation reads

$$F = \frac{D - P}{2}\,. \tag{4.4}$$

Substitution in equation (4.1) yields

$$\begin{aligned} Z &= \widetilde{b}_0 + \widetilde{b}_1 \left(\frac{D-P}{2}\right) + \widetilde{b}_2 P + \widetilde{b}_3 \left(\frac{D-P}{2}\right)^2 + \widetilde{b}_4 \left(\frac{D-P}{2}\right) P + \widetilde{b}_5 P^2 + e \\ &= \widetilde{b}_0 + \frac{\widetilde{b}_1}{2} D + \left(-\frac{\widetilde{b}_1}{2} + \widetilde{b}_2\right) P + \frac{\widetilde{b}_3}{4} D^2 + \left(-\frac{\widetilde{b}_3}{2} + \frac{\widetilde{b}_4}{2}\right) DP + \left(\frac{\widetilde{b}_3}{4} - \frac{\widetilde{b}_4}{2} + \widetilde{b}_5\right) P^2 + e \qquad (4.5) \\ &= b_0 + b_1 D + b_2 P + b_3 D^2 + b_4 DP + b_5 P^2 + e\,, \qquad (4.6) \end{aligned}$$

with coefficients b_i as in equation (6) in (Edwards & Parry, 1993, p. 1579) or equation [1] in (Schurer Lambert et al., 2003, p. 911). According to Edwards and Parry's (1993) approach, the slope «along the line of perfect fit» (p. 1593) is $b_1 + b_2$ and the curvature $b_3 + b_4 + b_5$, but comparison of equation (4.6) and equation (4.5) shows that $b_1 + b_2 = \widetilde{b}_2$ and $b_3 + b_4 + b_5 = \widetilde{b}_5$, which is in line with the coefficients in equation (4.2).

As a consequence, comparability with results of Montes and Irving (2008) is granted, because they reported the slope $(b_1 + b_2)$ and the curvature $(b_3 + b_4 + b_5)$ along the absolute line (table 5, p. 1377),

which equals to the slope $\widetilde{b}_2$ and curvature $\widetilde{b}_5$ in P. The same holds true for Vantilborgh et al. (2014, footnote 3, p. 225; indices are different due to the integration of control terms).

With regard to the *relative line*, Montes and Irving (2008, table 5, p. 1377) report the slope $(b_1 - b_2)$ and the curvature $(b_3 - b_4 + b_5)$ along the relative line, and so do Vantilborgh et al. (2014, footnote 4, p. 225; indices deviate again). However, comparison of equation (4.6) and equation (4.5) reveals that slope and curvature are not identical to the present choice, because $b_1 - b_2 = \widetilde{b}_1 + \widetilde{b}_2$ and $b_3 - b_4 + b_5 = \widetilde{b}_3 - \widetilde{b}_4 + \widetilde{b}_5$. In contrast, according to equation (4.3), the slope in F reads $\widetilde{b}_1$ and the curvature $\widetilde{b}_3$. Additional reasoning helps us to understand that the two approaches are similar, but not identical.

Schurer Lambert et al. (2003) obtain the coefficients of their breach line, which in the present case corresponds to the absolute line, by the substitution $P = -D$, implicitly relying on the assumption underlying difference scores, that is, P and D being commensurable, but opposite in sign. This becomes more obvious with regard to the identical reformulation $P + D = 0$. In words, fulfillment is where P and D are equal in magnitude, but opposite in sign. It is thus traceable that such an approach implicitly includes the slope $\widetilde{b}_2$ in P in addition to the slope $\widetilde{b}_1$ in F, yielding a coefficient $\widetilde{b}_1 + \widetilde{b}_2$, and similarly for the curvature the interaction coefficient $\widetilde{b}_4$ and the P^2 coefficient, $\widetilde{b}_5$.

Notably, neither of the two approaches reintroduces the issues of difference scores (Edwards, 1994). One of the issues of difference scores is that they «primarily represent the component with the larger variance», unless they are equal (p. 53). However, substituting $F = \frac{D-P}{2}$ does *not* rest upon the assumption of equal variances underlying differences scores. The reason is that coefficients $\widetilde{b}_i$ are estimated on behalf of equation (4.1), which is thus the empirical approximation with regard to *all* variables. In contrast, equations (4.2) to (4.6) talk about the (assumed to be) *true* relationship between Z, P, F, and D. Consequently, they do not refer to data points, and thus no variance lies within these variables. If we had used the notation $\widetilde{b}_i$ for the empirical and $\widetilde{\beta}_i$ for the true coefficients, equations (4.2) to (4.6) would have had to be written using $\widetilde{\beta}_i$. However, such an (undoubtedly more precise) notation would have obscured comparison to the equations with coefficients b_i both here and in the literature cited. Thus, transformation between the two approaches does not rely on this assumption inherent to difference scores.

Further, it is important that the two approaches are also equal with regard to the degrees of freedom. It is a common deficiency of the various types of difference scores that they contain inherent constraints with regard to the variables (for an overview, see Edwards, 1994, table 1, pp. 54–55). Yet, as long as

all the terms to the 2nd order are kept, the degrees of freedom do not change, given that the matrix A transforming the coefficient set $\widetilde{b}_i$ into b_i, that is $A\widetilde{b}_i = b_i$,

$$A = \begin{pmatrix} 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{2} & 0 & 0 & 0 & 0 \\ 0 & -\frac{1}{2} & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{4} & 0 & 0 \\ 0 & 0 & 0 & -\frac{1}{2} & \frac{1}{2} & 0 \\ 0 & 0 & 0 & \frac{1}{4} & -\frac{1}{2} & 1 \end{pmatrix} \tag{4.7}$$

is of full rank. This is indeed the case, because $\det A_{n\times n} = \prod_{i=1}^{n} a_{ii}$ for any triangular matrix and $\det A_{n\times n} \neq 0 \Leftrightarrow \operatorname{rank} A_{n\times n} = n$. Thus, neither of the approaches impose any constraint inherent to difference scores.

The third variant involves a second transformation, referring to Robinson (1996), who relied on algebraic difference scores (p. 596):

> People may be more sensitive to perceived breaches, however, than to perceived fulfillment (or overfulfillment), and thus one may argue that the former should be weighted more heavily than the latter in the aggregation. Because it is very difficult to determine how much more weight should be given to perceived breaches than to perceived fulfillment, they were weighted equally, which produces the most conservative measure of psychological contract breach.

Yet Organizational Behavior research presents a way to determine the weights given to under- and overfulfillment. According to prospect theory (Kahneman & Tversky, 1979; Tversky & Kahneman, 1992), individuals give more weight to losses, relative to their point of reference, than they give to gains. Also, the effect is curvilinear with decreasing sensitivity both for higher gains and lower losses. It is astonishing that authors writing about psychological contracts have only sporadically referred to prospect theory (e. g., N. Conway et al., 2011; Schalk & Roe, 2007). Nevertheless, Tversky and Kahneman's (1992) operationalization allows for a more precise interpretation of F. P may be interpreted as the point of reference and F as the gain or loss relative to P (Schurer Lambert et al., 2003, p. 901). Thus, P remains unchanged and

$$\widehat{F} \doteq c \cdot \left(F^{\alpha} \cdot \mathbb{1}_{F\geq 0} - \lambda |F|^{\beta} \cdot \mathbb{1}_{F<0} \right) , \tag{4.8}$$

where $\mathbb{1}_I$ is the characteristic function, returning value 1 for interval I and 0 otherwise, and c is a scaling factor, making sure that all variables are still of the correct range. Further, $\alpha < 1$ is the exponent indicating decreasing sensitivity for gains, $\beta < 1$ the equivalent for losses, and $\lambda > 1$ the coefficient of loss aversion.

Tversky and Kahneman (1992) reported $\alpha = 0.88$, $\beta = 0.88$, $\lambda = 2.25$ for their initial, small sample ($n = 25$), but recent studies report somewhat smaller effects, especially for λ. In concrete terms, I will refer to the empirical work of Booij, Van Praag, and Van De Kuilen (2010), who conducted their experiment within a sample of $n = 1\,935$ participants from the general public in the Netherlands, a country that

is comparable to Switzerland (House et al., 2004) in terms of performance orientation (p. 269).[39] They report $\alpha = 0.859$ and $\beta = 0.826$, both values significantly lower than 1, but not significantly different from each other ($z = 1.39, p = .166$). For the loss aversion coefficient, they found $\lambda = 1.58$, being significantly greater than 1. With a value well below 2, this still corresponds to a rather conservative measure of breach, as proposed by Robinson (1996).

The scaling factor c, which is not part of prospect theory but is introduced here to keep measurements as equal in range as possible, has yet to be derived. Due to $\lambda > 1$ and $\alpha \approx \beta$, the underfulfillment side of F is more stretched than the overfulfillment side, causing asymmetry. The center point $F = 0$ is not shifted and therefore, c is chosen according to the lowest possible value of transformed $F_{\min} = -2$, which is $c \doteq \dfrac{-2}{-1.58 \cdot 2^{0.826}} = 0.7140$. To continue, I write the empirically derived substitution

$$\widehat{F} \doteq 0.7140 \cdot \left(F^{0.859} \cdot \mathbb{1}_{F \geq 0} - 1.58 |F|^{0.826} \cdot \mathbb{1}_{F<0} \right) \tag{4.9}$$

where the $\widehat{\ }$ indicates that technically, this can be achieved by a (piecewise differentiable) transformation of F. This is convenient because it allows that coefficients according to both regression equations (4.2) and (4.3) can be calculated without further manipulation of the equations.

One last equation is needed to prepare for chapter 4.4. Given that the structure of D will be investigated, too, this variable has to be derived from the measures P and F. Although it may seem convenient to define $D = 2F + P$ according to equation (4.4), this would complicate the interpretation, given that such a D exceeds the range of the other variables by a factor of 3. Thus, for reasons of congruence within the present study rather than towards other studies from the past, D is defined so that it stays within the $[-2, 2]$ range as the other measures do:

$$D \doteq \frac{F - P}{2} . \tag{4.4'}$$

The contrast of this to equation (4.4) illustrates the importance of the choice in variables. Moving from one representation to another, as in equations (4.5) and (4.6), is mathematically feasible, but the impact of the different choices of measured variables can not simply be transformed away, as Edwards et al. (2006) have shown empirically.

39 And, remarkably, this is true in most other indicators of the GLOBE studies, e. g. collectivism, future orientation, uncertainty avoidance, and assertiveness. Indeed, the Netherlands and the German speaking part of Switzerland both belong to the cluster of «Germanic Europe», but the French speaking part of Switzerland belongs culturally to «Latin Europe».

4.4 Results

The results section contains descriptive findings and hypothesis tests concerning *nature, content, structure, and antecedents* of the psychological contract in chapter 4.4.1, reports *effects of the psychological contract* in chapter 4.4.2, and compares *methodological variants* in chapter 4.4.3. Descriptive findings common to the whole dissertation are outsourced in preliminary chapters 3.5.3 for description of the sample, 3.6.3 with regard to the outcome variables, and 3.6.4 with regard to the control variables.

4.4.1 Nature, content, structure, and antecedents of the psychological contract

The sample in the present chapter includes $n = 2\,928$ responses where only psychological contract items are used, but participation drops to $n = 2\,820$ when all outcome variables are included. This corresponds to an attrition of 3.7% or an absolute decrease of 1.1% in the response rate. The use of these different sample sizes is consistent with the fundamental principle of missing data analysis, which states that all existing data should be used (Newman, 2009, p. 11). Details about attrition at different states of the survey can be found in chapter 3.5.3.

Table 4.3 provides descriptive statistics for the directly measured 30 items of the psychological contract, and directs attention to potential perils in the following analysis. Measures are centered around the scale midpoint to reduce multicollinearity issues in PRA (Edwards, 1994). Means and skewness variate considerably. Two exemplary variables illustrate that these non-normalities are subsample-specific: P_{HOURS} is the only P item with a mean below 0. This is due to the absence of working hours regulations for military professionals and senior active reservists. P_{PAY} is the most leptokurtic and the most skewed variable at once. However, the pattern stems from employees only, because senior active reservists are not effectively paid for their duty by the Swiss Armed Forces. Figure 4.3 shows histograms for the two exceptional variables and compares them with the more normal variable P_{RESPO}, corroborating the suggestion that deviations from normality are largely induced by subsample-specific distributions. Thus, variable transformation as a canonical remedy would reduce non-normality in one subsample only at the cost of increased non-normality in another subsample. Thus no transformations are performed at all.

Further, considerably lower n for ideational fulfillment F calls for explanation. The framing question that was asked right before the ideational items, as explained in chapter 4.3.1, helped understanding. Respondents had to rate on a 5-point Likert scale whether in their opinion, the Swiss Armed Forces serve a certain cause that extend beyond constitutional missions, abbreviated $CABCO$. Of the 409 participants answering the framing question $CABCO$ by «not at all», 104 did *not* rate the items about ideational promised inducements. This logic is traceable: if I am convinced that there is *no* higher cause, then I may not be able to answer the question about whether the organization is committed toward this non-existing cause. In terms of the psychological contract concept, this may correspond to the *perception* that Swiss Armed Forces is *not* obligated to pursue this cause, but participants did not inevitably follow this reasoning.

Table 4.3: Basic statistics of the original and imputed 30 variables related to the psychological contract.[a] Full text of variables are listed in appendix A.1.

Item	n	Missing	Mean		Std. Deviation		Skewness		Excess Kurtosis	
	Orig.	Orig.	Orig.	Imp.	Orig.	Imp.	Orig.	Imp.	Orig.	Imp.
P_{PAY}	2 915	0.4%	1.19	1.19	1.03	1.03	−1.33	−1.32	1.23	1.21
P_{HOURS}	2 900	1.0%	−0.25	−0.25	1.25	1.25	0.22	0.22	−0.88	−0.87
P_{HIRED}	2 915	0.4%	1.31	1.31	0.81	0.81	−1.05	−1.05	0.73	0.72
P_{RESPO}	2 914	0.5%	1.05	1.05	0.89	0.89	−0.85	−0.85	0.58	0.58
P_{TRAIN}	2 919	0.3%	1.34	1.34	0.81	0.81	−1.14	−1.14	0.91	0.92
P_{WELFA}	2 912	0.5%	0.39	0.39	0.98	0.98	−0.11	−0.11	−0.32	−0.32
P_{MYINT}	2 919	0.3%	0.38	0.38	1.01	1.01	−0.25	−0.25	−0.29	−0.29
P_{IBELO}	2 915	0.4%	0.77	0.77	0.92	0.92	−0.45	−0.45	−0.12	−0.12
P_{WELLB}	2 918	0.3%	0.67	0.67	0.95	0.95	−0.39	−0.39	−0.14	−0.13
P_{VALUE}	2 904	0.8%	1.01	1.00	0.97	0.97	−0.72	−0.72	−0.06	−0.06
P_{INVOL}	2 711	7.4%	0.85	0.82	1.01	1.00	−0.78	−0.74	0.39	0.32
P_{ADVAN}	2 712	7.4%	0.87	0.84	1.12	1.10	−0.88	−0.82	0.12	0.07
P_{CULTU}	2 713	7.3%	1.02	1.00	0.96	0.95	−1.03	−0.97	1.00	0.87
P_{CONTR}	2 703	7.7%	0.91	0.88	1.06	1.05	−0.90	−0.83	0.31	0.21
P_{PUBLI}	2 718	7.2%	0.97	0.95	1.13	1.11	−1.03	−0.98	0.32	0.27
F_{PAY}	2 850	2.7%	−0.25	−0.25	0.77	0.77	−0.33	−0.32	0.96	0.92
F_{HOURS}	2 796	4.5%	−0.17	−0.17	0.85	0.85	−0.14	−0.12	0.72	0.65
F_{HIRED}	2 884	1.5%	0.24	0.24	0.77	0.77	0.19	0.19	0.92	0.91
F_{RESPO}	2 896	1.1%	−0.15	−0.15	0.75	0.75	−0.05	−0.04	0.72	0.70
F_{TRAIN}	2 879	1.7%	−0.20	−0.20	0.82	0.82	−0.08	−0.08	0.18	0.18
F_{WELFA}	2 853	2.6%	−0.38	−0.37	0.80	0.79	−0.20	−0.20	0.03	0.04
F_{MYINT}	2 850	2.7%	−0.35	−0.35	0.84	0.83	−0.17	−0.16	−0.02	−0.02
F_{IBELO}	2 887	1.4%	0.00	0.00	0.79	0.79	−0.17	−0.17	0.66	0.65
F_{WELLB}	2 856	2.5%	−0.41	−0.41	0.83	0.83	−0.12	−0.11	−0.13	−0.12
F_{VALUE}	2 846	2.8%	−0.16	−0.16	0.84	0.84	−0.22	−0.21	0.26	0.26
F_{INVOL}	2 534	13.5%	−0.09	−0.10	0.75	0.74	−0.10	−0.08	0.91	0.79
F_{ADVAN}	2 562	12.5%	−0.28	−0.28	0.86	0.85	0.13	0.14	−0.03	−0.05
F_{CULTU}	2 554	12.8%	−0.33	−0.32	0.89	0.87	0.22	0.21	0.01	−0.01
F_{CONTR}	2 557	12.7%	−0.11	−0.11	0.85	0.83	0.11	0.12	0.25	0.21
F_{PUBLI}	2 566	12.4%	−0.48	−0.47	0.98	0.97	0.33	0.33	−0.29	−0.30

[a] $n = 2\,928$, of which 2 121 are listwise complete.

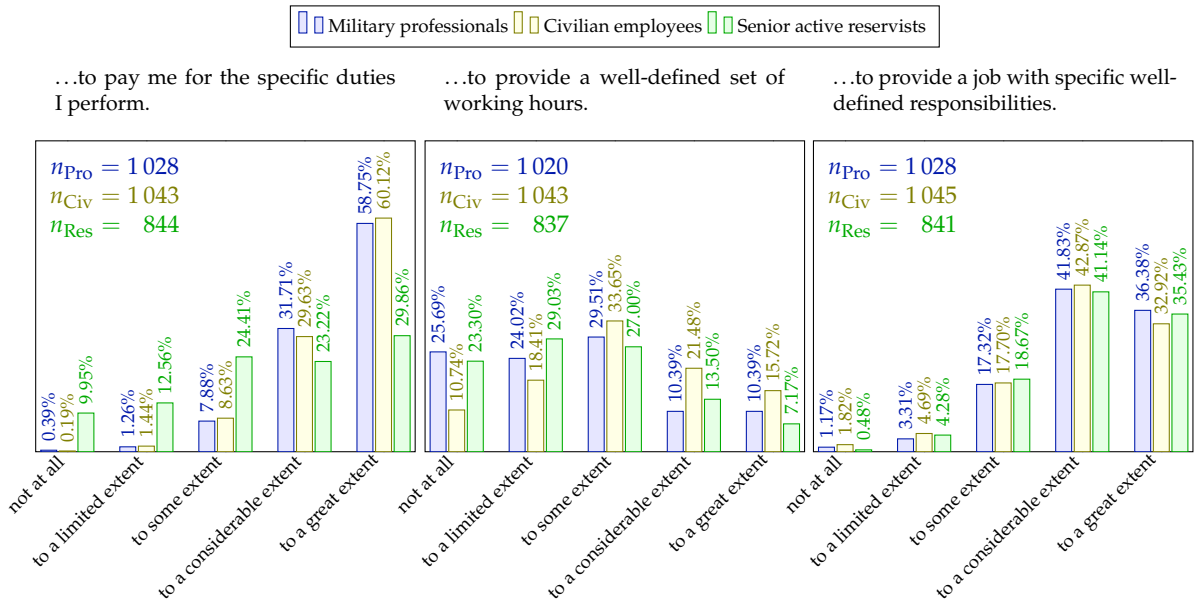

Figure 4.3: Histograms for items P_{PAY}, P_{HOURS} and P_{RESPO}. The items were introduced by the statement «I feel the Swiss Armed Forces are obligated …». Note that subsample sizes vary.

Overall, 827 out of $n = 2\,928$ or 27.56% of all data sets had at least one missing value among the 30 P and F items. However, the vast majority had only 1 missing item, and therefore, only 4.306% of values were missing in total. I assume that most values are missing completely at random (MCAR), with the exception of the case of P_{ideat} items described above. According to the argument above, these missing values are expected to depend on the observable variable $CABCO$, although this argument is not likely to be valid for F_{ideat} items. Little's MCAR test (R. J. Little, 1988), performed on means, covariances and correlations separately for all 6 bundles of 5 items, provides evidence that data are indeed MCAR for $P_{trans}(\chi^2(27) = 23.212, p = .674)$, $P_{relat}(\chi^2(24) = 24.572, p = .429)$, $F_{trans}(\chi^2(52) = 54.028, p = .397)$, $F_{relat}(\chi^2(60) = 38.540, p = .986)$, and $F_{ideat}(\chi^2(63) = 61.405, p = .533)$, but not for $P_{ideat}(\chi^2(37) = 71.559, p = .001)$, as expected. Provided that we have the observable $CABCO$ explaining the missing values in P_{ideat}, I assume these to be missing at random (MAR; Newman, 2009).

To properly perform confirmatory factor analysis in a future step, multiple imputation (MI) is applied, following chapter 3.7. $CATEGORY$, AGE, $GENDER$, $LANGUAGE$, and $CABCO$ were used as predictors and the P items were included as predicting and to be imputed variables at once. $CABCO$ is responsible for the changes in means and standard deviations, as can be seen in table 4.3. There, means and standard deviations for imputed data only deviate for P_{ideat} items. This was expected, given that imputed values are more often associated with low values of $CABCO$, therefore lowering the mean of the corresponding items, consistent with the MAR assumption.

Given that only few studies have yet investigated all three layers of the psychological contract simultaneously (e. g., Bingham, 2005; Montes & Irving, 2008) and none of them in a military context, exploratory factor analysis (EFA) is applied as an adjunct to confirmatory factor analysis (CFA; Gorsuch,

1997, p. 536). According to chapter 3.8, EFA is technically applied as principal axis factoring (PAF) with *promax* rotation.

To test hypothesis 4.1.a, EFA is applied to the 15 items of perceived inducements P. Kaiser-Meyer-Olkin measure of sampling $KMO = .866$ is greater than the canonical .6 and therefore, the data are suitable for factor analysis. PAF based on imputed values yield to 4 factors according to the Kaiser rule, but the 4^{th} factor with an eigenvalue of 1.015 is only slightly above the threshold. Inspection of the scree plot (Hayton et al., 2004) yields three factors, in accordance with theoretical reasoning. Thus, a 3-factor solution is extracted, explaining 57.1% of variance.

The pattern matrix reveals very high factor loadings for all P_{ideat} and P_{relat}, but only for 3 out of 5 P_{trans}. Contrary to expectations, P_{PAY} and P_{HOURS} do not properly load on the expected transactional factor, but show considerable cross-loadings on the expected relational factor (see table 4.4). The result is similar when oblimin rotation is applied instead of promax. Changing to orthogonal rotation, namely varimax, raises cross-loadings in general, but does not change the overall pattern. Yet the factor correlation matrix shows «enough variance to warrant oblique rotation», given that $r_{\text{trans}-\text{relat}} = .449$ is above the threshold of .32 suggested by Tabachnick and Fidell (2013, p. 699). Thus, promax rotation is kept.

Table 4.4: Pattern Matrix[a] of promised inducements P with 3 factors extracted by means of Principal Axis Factoring. The number in parentheses indicates order of factor, according to extraction.

Item	Factor		
	(3) transactional	(2) relational	(1) ideational
P_{PAY}	.210	.248	.024
P_{HIRED}	**.621**	−.055	−.000
P_{HOURS}	.245	.146	−.043
P_{RESPO}	**.692**	.024	−.003
P_{TRAIN}	**.426**	.060	.029
P_{WELFA}	−.053	**.839**	−.022
P_{MYINT}	.043	**.610**	−.008
P_{IBELO}	.056	**.646**	−.005
P_{WELLB}	−.049	**.818**	.001
P_{VALUE}	.039	**.587**	.043
P_{INVOL}	.049	.027	**.681**
P_{ADVAN}	−.032	.015	**.872**
P_{CULTU}	.035	−.027	**.786**
P_{CONTR}	−.012	.006	**.876**
P_{PUBLI}	−.032	−.015	**.801**

[a] $n = 2\,928$. Promax rotation with Kaiser normalization used.

To ensure that these findings were not caused by imputation, PAF is applied to the original data, both under pairwise and listwise exclusion of missing data points. The results are very similar. A calculation of and comparison to the methodological alternative PCA is omitted, given that, as explained in chapter 3.8, there is no sound theoretical base for doing so.[40]

The two cross-loading items P_{PAY} and P_{HOURS} are those found to deviate markedly with regard to subsamples (see table 4.3 and figure 4.3). This is further corroborated by one-way ANOVA, comparing mean differences between the three subsamples for all P items. Means differ significantly ($p < .05$) for 13 out of the 15 items, and post hoc pair-wise comparison reveals further details. Dunnett's C procedure is applied, because among those post hoc tests suitable for samples with unequal variances, it is most suitable for large degrees of freedom (Dunnett, 1980). Of the $15 \cdot \frac{3!}{2} = 45$ pairs, 24 differ at ($p < .05$) level, but given the large sample size, differences as small as 0.115 standard deviations are already significant. The largest differences of almost 1 standard deviation in mean difference $\Delta\mu$ for two subsamples are found for P_{PAY} with $\Delta\mu_{\text{pro}-\text{res}} = 0.937$ and $\Delta\mu_{\text{civ}-\text{res}} = 0.948$, for P_{TRAIN} with $\Delta\mu_{\text{civ}-\text{pro}} = -0.530$ and $\Delta\mu_{\text{civ}-\text{res}} = -0.739$, for P_{HOURS} with $\Delta\mu_{\text{civ}-\text{pro}} = 0.457$ and $\Delta\mu_{\text{civ}-\text{res}} = 0.490$ and for P_{WELFA} with $\Delta\mu_{\text{res}-\text{pro}} = -0.520$ and $\Delta\mu_{\text{res}-\text{civ}} = -0.445$. All mean differences in this paragraph are indicated in standard deviations from the full sample.

Consequently, PAF with promax rotation is applied to the three subsamples of military professionals, civilian employees and senior active reservists separately. The imputed data sets are suitable for such a procedure with $KMO = .863, .874, .838$ for the three subsamples. The findings are illuminating and they are summarized in the three following paragraphs.

For military professionals, the eigenvalue of the 4th factor drops to .975, yielding convergence between Kaiser rule and scree plot investigation. In other words, the factor extraction is more clear-cut and explains a slightly higher share of variance (58.0%). Pattern matrix shows a remarkably clear structure, with very low cross-loadings, the highest being $\lambda_{P_{\text{HIRED}}} = .075$ on the suggested relational factor. Main loadings are very distinct, too, ranging from .605 to .801 for the relational and from .667 to .878 for the ideational factor. With regard to the transactional factor, loadings are between .484 and .661, with one exception: $\lambda_{P_{\text{HOURS}}} = .200$ only, without any considerable cross-loading ($-.063$ for the ideational and .070 for the relational factor). Inter-factor correlation changes to $r_{\text{trans}-\text{relat}} = .502$, $r_{\text{trans}-\text{ideat}} = .172$, and $r_{\text{relat}-\text{ideat}} = .169$, still justifying oblique rotation.

For civilian employees, the eigenvalue of the 4th factor drops to .895 and thus, explained variance rises to 59.8%. Corresponding to this distinct extraction, loadings are less ambiguous, too, than in the full sample. Main loadings range from .397 to .700 for the transactional, from .538 to .869 for the relational and from .677 to .897 for the ideational factor. However, one considerable cross-loading appears that was not found in the full sample: P_{TRAIN} loads well ($\lambda_{P_{\text{TRAIN}}} = .397$) on the transactional, but also with $\lambda_{P_{\text{TRAIN}}} = .237$ on the relational factor. Inter-factor correlations are generally higher, with $r_{\text{trans}-\text{relat}} = .521$, $r_{\text{trans}-\text{ideat}} = .261$ and $r_{\text{relat}-\text{ideat}} = .211$.

40 According to Fabrigar et al. (1999), it is even a «mistake[. . . to] believe that PCA is a type of EFA» (p. 275).

For senior active reservists, the 4th factor's eigenvalue stays with 1.017 above the Kaiser threshold and consequently, extracting 3 factors only explains 55.4% in variance. The pattern matrix reveals clear factor structure for the expected P_{relat} and P_{ideat} items, with loadings from .573 to .775 and from .705 to .834, respectively. Cross-loadings are generally higher, with three ideational and one relational item loading on the assumed transactional factor and, notably, severe cross-loadings for the expected problematic variables P_{PAY} and P_{HOURS}. Both items load more on the proposed relational factor with $\lambda_{P_{\text{PAY}}} = .338$ and $\lambda_{P_{\text{HOURS}}} = .364$ than on the proposed transactional factor ($\lambda_{P_{\text{PAY}}} = .293$, $\lambda_{P_{\text{HOURS}}} = .262$). Inter-factor correlations are lower with $r_{\text{trans}-\text{relat}} = .332$, $r_{\text{trans}-\text{ideat}} = .198$ and $r_{\text{relat}-\text{ideat}} = .107$, but they still justify oblique rotation.

Finally, PAF is applied to retain a 4-factor solution, according to the inclusive interpretation of the Kaiser rule. In doing so, variance explained rises to 63.9%. Pattern matrix (table 4.5) suggests that the transactional factor of the original extraction (table 4.4) decays into two factors with P_{HIRED}, P_{RESPO} and P_{TRAIN} on some kind of *content*-transactional factor and P_{PAY} as well as P_{HOURS} on a more *monetary*-transactional factor. This interpretation is suggestive, but it is not fully supported by subsample analysis. For military professionals, only P_{HOURS} loads clearly on a separate factor. For civilian employees, extraction did not converge after 25 iterations. For senior active reservists, the sub-factor solution is reproduced, but not unambiguously. To summarize, EFA tends to confirm hypothesis 4.1.a of a three-factor solution, but the definitive answer has to be delegated to the investigation by means of CFA. Before doing so, EFA is applied to fulfillment items F and constructed delivered inducement items D.

In the case of F, data are equally suitable for PAF, with $KMO = .901$. Both scree plot and Kaiser rule lead to a three-factor extraction explaining 56.3% of variance. The pattern matrix is very clear-cut (table 4.6) with the lowest main loading being $\lambda_{F_{\text{HOURS}}} = .377$ and the highest cross-loading being $\lambda_{F_{\text{IBELONG}}} = .141$ on the transactional factor. Inter-factor loadings are generally higher than in the P case, with $r_{\text{trans}-\text{relat}} = .555$, $r_{\text{trans}-\text{ideat}} = .495$ and $r_{\text{relat}-\text{ideat}} = .456$. Thus, oblique rotation is again appropriate. Sub-sample analysis largely confirms the general structure. Only in the case of senior active reservists, F_{PAY} loads primarily on the relational factor, and F_{HOURS} by cross-loading. Thus, EFA largely confirms hypothesis 4.1.b, but again CFA is needed to fortify this preliminary finding.

Perceived delivered inducements D are constructed according to equation (4.4′) out of P and F. EFA is applied as in the case of P and F. Data are suitable according to $KMO = .878$. Both scree plot and Kaiser rule propose extraction of 3 factors, explaining 55.0% of variance. Within the pattern matrix, all main loadings are $> .300$, with the lowest being $\lambda_{D_{\text{PAY}}} = .302$ and all cross-loadings are $\leq .130$, with the biggest being $\lambda_{D_{\text{PAY}}} = .130$. Inter-factor correlations are somewhat lower than for F ($r_{\text{trans}-\text{relat}} = .484$, $r_{\text{trans}-\text{ideat}} = .355$ and $r_{\text{relat}-\text{ideat}} = .314$), but they still justify oblique rotations. Subsample analysis leads to similar results as in the case of F, and the pattern matrix for senior active reservists is even closer to expectations, with the lowest main-loading being $\lambda_{D_{\text{PAY}}} = .247$ and the highest cross-loading $\lambda_{D_{\text{PAY}}} = .205$. To summarize, EFA largely confirms hypothesis 4.1.c, but again, CFA is needed for rigorous testing.

Table 4.5: Pattern Matrix[a] of promised inducements P with 4 factors extracted by means of Principal Axis Factoring. The number in parentheses indicates order of factor, according to extraction.

Item	Factor			
	(4) transactional[b]	(3) transactional[c]	(2) relational	(1) ideational
P_{PAY}	**.319**	.025	.189	.030
P_{HOURS}	**.519**	−.037	.040	−.038
P_{HIRED}	.214	**.487**	−.084	.004
P_{RESPO}	.184	**.571**	.004	.001
P_{TRAIN}	−.241	**.665**	.081	.009
P_{WELFA}	.029	−.061	**.828**	−.022
P_{MYINT}	−.013	.061	**.611**	−.010
P_{IBELO}	.084	.013	**.627**	−.004
P_{WELLB}	−.053	−.005	**.826**	−.002
P_{VALUE}	.036	.023	**.579**	.044
P_{INVOL}	−.074	.095	.042	**.680**
P_{ADVAN}	.043	−.060	.005	**.874**
P_{CULTU}	−.021	.046	−.022	**.785**
P_{CONTR}	.033	−.034	−.001	**.878**
P_{PUBLI}	−.013	−.025	−.014	**.800**

[a] $n = 2\,928$. Promax rotation with Kaiser normalization used.
[b] Suggestive interpretation: monetary-related transactional contract.
[c] Suggestive interpretation: content-related transactional contract.

Table 4.6: Pattern Matrix[a] of perceived fulfillment F with 3 factors extracted by means of Principal Axis Factoring. The number in parentheses indicates order of factor, according to extraction.

Item	Factor		
	(3) transactional	(1) relational	(2) ideational
F_{PAY}	**.405**	.067	.025
F_{HOURS}	**.377**	−.021	−.020
F_{HIRED}	**.404**	−.116	−.006
F_{RESPO}	**.674**	.014	−.011
F_{TRAIN}	**.470**	.135	.046
F_{WELFA}	−.110	**.892**	−.006
F_{MYINT}	−.009	**.687**	.033
F_{IBELO}	.141	**.546**	−.010
F_{WELLB}	−.068	**.875**	−.015
F_{VALUE}	.056	**.735**	−.008
F_{INVOL}	.096	.051	**.576**
F_{ADVAN}	−.035	−.018	**.835**
F_{CULTU}	.000	.077	**.737**
F_{CONTR}	−.047	−.041	**.841**
F_{PUBLI}	.017	−.042	**.684**

[a] $n = 2\,928$. Promax rotation with Kaiser normalization used.

Next, I perform CFA using Amos 23.0.0. This is done separately for the 15 P promised inducement items first, then for the fulfillment items F, and finally for the composed D variables, representing delivered inducements.

The most commonly applied estimation technique is maximum likelihood (ML), assuming normality in variables (Ullman, 2013). In contrast, asymptotic distribution-free (ADF) allows data to vary in skewness and kurtosis. However, Monte Carlo simulations showed that ADF usually produces poor estimates unless it is done in very large samples ($n > 2\,500$; Hu, Bentler, & Kano, 1992), and for samples of such sizes, ML is suitable even for non-normal data (Ullman, 2013). Given that deviations from normality are not extreme (see table 4.3), ML is the adequate estimation technique in this case.

Given that EFA suggested 3 or 4 factors for P, the following models are tested against each other: a 1-factor solution where all items load on one common latent variable P_{all}, a 2-factor solution where P_{trans} and P_{relat} items load on one common factor $P_{\text{traditional}}$ and P_{ideat} on a separate factor,[41] a 3-factor solution where P_{trans}, P_{relat} and P_{ideat} load separately on their respective factors,[42] according to table 4.4, a 4-factor solution according to table 4.5 without 2nd-order factors and a 4-factor solution with one 2nd-order factor P_{trans} and two corresponding 1st-order factors $P_{\text{t-mone}}$ and $P_{\text{t-cont}}$, as suggested in footnotes [b,c] in table 4.5. Table 4.7 provides fit indices for these 5 models.

Table 4.7: Fit indices[a] for five different Confirmatory Factor Analysis[b] models for promised inducement variables P. Final model in **bold**.

Model[c]	χ^2	df	χ^2/df	$\Delta\chi^2$	$SRMR$	CFI	TLI	$RMSEA$ [$CI_{90\%}$]
1-factor	15 253.380	352	43.333		0.179	.552	.466	.085 [.084, .086]
2-factor	3 577.201	348	10.279	11 676.179	0.063	.903	.883	.040 [.039, .041]
3-factor	1 239.085	336	3.688	2 338.116	0.041	.973	.966	.021 [.020, .023]
3-factor/2nd-order	**983.895**	**328**	**3.000**	**255.190**	**0.033**	**.980**	**.975**	**.018 [.017, .020]**
4-factor	961.719	324	2.968	22.176	0.031	.981	.975	.018 [.017, .020]

[a] *SRMR* Standardized Root Mean Square of Residuals, *CFI* Comparative Fit Index, *TLI* Tucker Lewis Index, *RMSEA* Root Mean Square Error Approximation.
[b] $n = 2\,928$.
[c] 1-factor model: all 15 P items loading on one single latent factor P_{all}.
2-factor model: P_{trans} and P_{relat} items loading on one common latent factor $P_{\text{traditional}}$, P_{ideat} items loading on one separate factor.
3-factor model: P_{trans}, P_{relat} and P_{ideat} items loading on three separate latent factors.
3-factor/2nd-order model: P_{trans}, P_{relat} and P_{ideat} items loading on three separate latent factors, whereas P_{trans} is a 2nd-order latent factor, with subordinated latent factors for 2 $P_{\text{t-mone}}$ and 3 $P_{\text{t-cont}}$ items.
4-factor model: P_{monet}, P_{cont}, P_{relat} and P_{ideat} items loading on four separate latent factors.

Fit indices for the 4-factor model are slightly better, but validity concerns suggest preferring the 3-factor/2nd-order model. According to Hair, Black, Babin, and Anderson (2010), convergent validity

41 This split corresponds to the proposed factor structure when extracting only 2 factors by PAF.

42 The ambivalent item P_{PAY} was related to the latent variable P_{trans}, to allow for better comparison with the 4-factor models. Relating to P_{relat} instead would have lowered model fit ($\chi^2/df = 4.289$, $SRMR = 0.046$, $CFI = .967$, $TLI = .959$, $RMSEA = .024$ [.022, .025], when compared to the 3-factor solution in table 4.7.

requires composite reliability $CR > .707$ and Average Variance Extracted $AVE > .5$, which is the case for the 3-factor/2nd-order model, but not for the 3-factor model where $CR_{\text{cont}} = .620$, $AVE_{\text{cont}} = .358$ and $CR_{\text{monet}} = .360$, $AVE_{\text{monet}} = .223$, respectively. Also, AVE are smaller then the respective Maximum Shared Variance, with $MSV_{\text{cont}} = .388$ and $MSV_{\text{monet}} = .396$ and AVE is smaller than the Average Shared Squared Variance ASV. Discriminant validity, is violated as well, because $\sqrt{AVE_{\text{cont}}} = .598 < |r_{\text{monet-cont}}| = .623$ and the same is true for $\sqrt{AVE_{\text{monet}}} = .472$; that is, the square-root of the average variance extracted is less than the absolute value of the correlation $|r|$ with another factor. In contrast, the 3-factor-/2nd-order model does not include any validity concerns, as shown in table 4.8.

Table 4.8: Validity measures[a] according to Hair et al. (2010) for promised inducements P in the 3-factor/2nd-order model.

	CR	AVE	MSV	ASV	P_{trans}	P_{relat}	P_{ideat}
P_{trans}	.783	.648	.454	.257	*.805*		
P_{relat}	.832	.502	.454	.242	.674	*.708*	
P_{ideat}	.897	.639	.061	.045	.246	.170	*.799*

[a] Thresholds for convergent validity: composite reliability $CR > .707$, average variance extracted $AVE = .5$.
Criteria for discriminant validity: $AVE > MSV$ (Maximum Shared Variance), $\sqrt{AVE}$ (in *italics* on the diagonal of the triangular correlation matrix at the right side) greater than any correlation with another factor.

Subsample specific EFA, as elaborated above, suggested that different sets of variables contributed to the psychological contract factors in a specific manner for military professionals, civilian employees and senior active reservists. Because these PAF extractions proposed 3 factors, corresponding 3-factor models are tested by CFA, dropping items with main loadings $< .4$ and/or cross loadings $> .2$ in the respective subsample. Although these models show reasonable fit in terms of $SRMR$, CFI, TLI and $RMSEA$ and even better fit in terms of χ^2/df (1.854, 2.727, and 2.237) than the mother model, they have to be rejected due to validity concerns ($CR_{\text{trans}} < .69$ and $AVE_{\text{trans}} < .35$ for all subsamples, and $AVE_{\text{relat}} = .452$ for senior active reservists).

For the 3-factor/2nd-order model, common method bias (CMB) was tested in two different ways. According to Harman's single factor test (Harman, 1976), extracting 1 single factor should not explain more than 50% of variance, which is clearly not the case (28.5%). Further, I repeat the CFA by introducing an unmeasured common latent factor (CLF; Podsakoff, MacKenzie, Lee, & Podsakoff, 2003) and comparing standardized regression weights of the model with and without CLF. Weights should not fall by more than .2, which is the case for the 3-factor/2nd-order model.

Still for the 3-factor/2nd-order model, I free covariance terms between errors to lower χ^2/df. This is feasible only for P_{ideat} items; doing so for the error terms of P_{relat} would lower reliability measures below canonical thresholds. In contrast, the reliability of the ideational is good enough to allow for freeing error covariances, which is suitable in the case of a common latent factor (Landis, Edwards, & Cortina, 2009, p. 209).

To summarize, the 3-factor/2nd-order model is most adequate in terms of validity measurements, with regard to CMB and according to mostly good ($SRMR$, CFI, TLI and $RMSEA$), or at least acceptable (χ^2/df) fit indices. Given the respectable sample size of $n = 2\,928$, high χ^2 values are expected and the more sophisticated indices are more trustworthy. Thus, hypothesis 4.1.a is supported, and the 3-factor/2nd-order model (figure 4.4) will be used for further studies, that is in chapter 6.

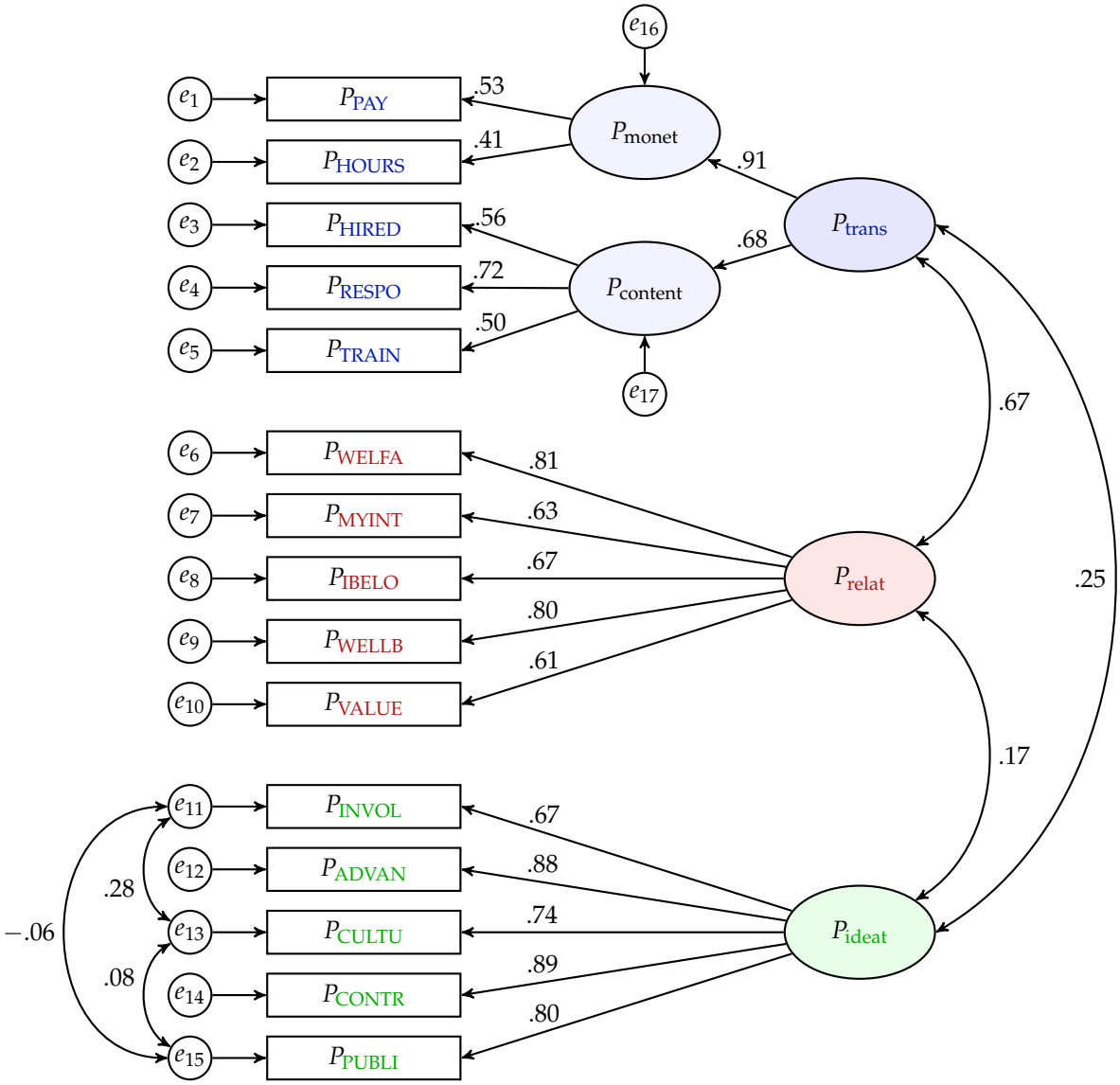

Figure 4.4: The 3-factor-2nd-order model for promised inducements P, as it is used in further analysis.

CFA with regard to fulfillment measurements F yields similar findings. Again the 4-factor model performs better than the 3-factor-2nd-order model in terms of χ^2/df (cf. table 4.9), but at the cost of violated convergent ($CR_{\text{cont}} = .545$, $AVE_{\text{cont}} = .304$ and $CR_{\text{monet}} = .399$, $AVE_{\text{monet}} = .255$) and discriminant validity ($MSV_{\text{cont}} = .543$, $MSV_{\text{monet}} = .543$ and $|r_{\text{monet-cont}}| = .737$). In contrast, the 2nd-order model shows no validity concerns (table 4.10). CMB does not cause problems in terms of Harman's

Table 4.9: Fit indices[a] for five different Confirmatory Factor Analysis[b] models for promised inducement variables F. Final model in **bold**.

Model[c]	χ^2	df	χ^2/df	$\Delta\chi^2$	$SRMR$	CFI	TLI	$RMSEA$ [$CI_{90\%}$]
1-factor	7 974.478	344	23.182		0.067	.757	.703	.062 [.060, .063]
2-factor	2 306.926	340	6.785	5 667.552	0.036	.937	.923	.031 [.030, .033]
3-factor	1 060.549	332	3.194	1 246.377	0.024	.977	.971	.019 [.018, .021]
3-factor/2nd-order	**1 051.859**	**331**	**3.178**	**8.690**	**0.027**	**.977**	**.971**	**.019 [.018, .021]**
4-factor	975.701	320	3.049	76.158	0.022	.979	.973	.019 [.017, .020]

[a] For meaning of fit indices, refer to footnote [a] in table 4.7.
[b] $n = 2\,928$.
[c] For the structure of the different models, refer to footnote [c] in table 4.7.

(1976) single factor test (1-factor extraction explaining 34.5%), nor does it by introducing a CLF (greatest difference $\Delta\lambda_{F_{\text{HIRED}}\leftarrow\text{cont}} = .127$). Testing of the 3-factor-2nd-order model for different subsamples shows minor validity concerns, but only in the case of senior active reservists, where $AVE_{\text{relat}} = .482$ drops below the .5-threshold and consequently, $\sqrt{AVE_{\text{relat}}} < MSV_{\text{relat}} = .549$ and also $< r_{\text{trans}-\text{relat}} = .741$. Removing the error covariance term between F_{WELFA} and F_{WELLB} would resolve the issue, but at the cost of a generally worse fitting model. In the opposite direction, freeing additional error covariances would further reduce χ^2/df to 2.783, but raising CMB with $\Delta\lambda_{F_{\text{HIRED}}\leftarrow\text{cont}} = .255$. Thus, the model has been adopted as shown in figure 4.5, and will be used for further studies, that is in chapter 5. To conclude, CFA supports hypothesis 4.1.b.

Table 4.10: Validity measures[a] according to Hair et al. (2010) for fulfillment F in the 3-factor/2nd-order model.

	CR	AVE	MSV	ASV	P_{trans}	P_{relat}	P_{ideat}
F_{trans}	.835	.716	.433	.370	*.846*		
F_{relat}	.857	.546	.433	.321	.658	*.739*	
F_{ideat}	.859	.551	.308	.259	.555	.458	*.742*

[a] See table 4.8 for validity thresholds and criteria.

Repeating CFA for the aggregated variables of delivered inducement D yields findings similar to those with regard to P and F. Model fit is essentially the same for the 3-factor/2nd-order model and the 4-factor model (table 4.11), but (again) with much better validity measurements. These good fits are tainted only by $AVE_{\text{relat}} = .476 < .5$, but there are no further concerns with regard to other convergent validity or any discriminant validity measures (table 4.12). Thus, the findings support hypothesis 4.1.c.[43]

43 Because D measures will not be modeled for further use I forgo presentation of pattern matrix or nested model structure as for P and F.

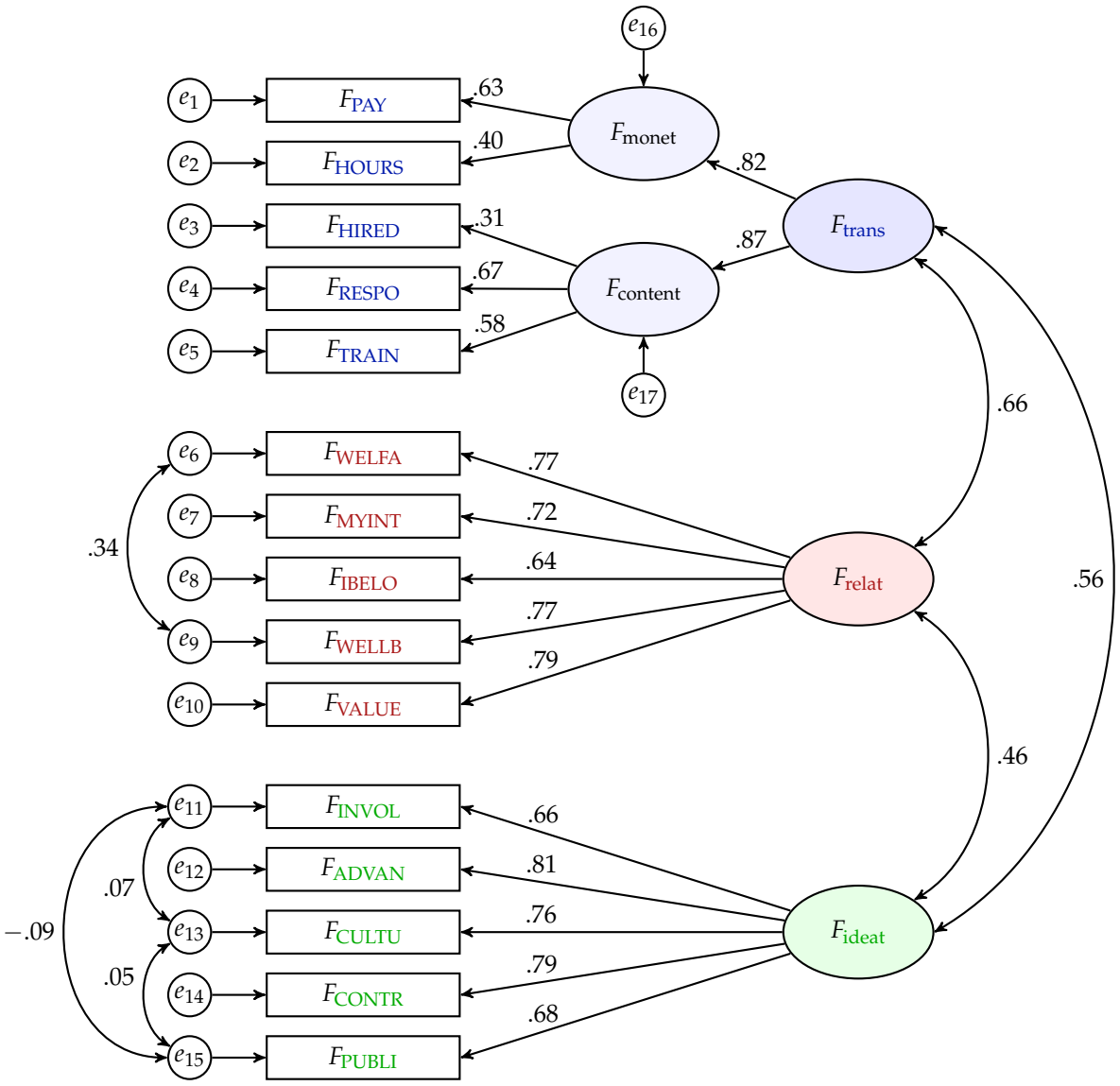

Figure 4.5: The 3-factor/2nd-order model for promised inducements F, as it is used in further analysis.

Table 4.11: Fit indices[a] for five different Confirmatory Factor Analysis[b] models for the (aggregated) delivered inducement variables D. Final model in **bold**.

Model[c]	χ^2	df	χ^2/df	$\Delta\chi^2$	$SRMR$	CFI	TLI	$RMSEA$ [$CI_{90\%}$]
1-factor	11 506.539	352	32.689		0.049	.612	.537	.074 [.072, .075]
2-factor	2 662.162	348	7.650	8 844.377	0.022	.920	.903	.034 [.033, .035]
3-factor	1 104.034	340	3.247	1 558.128	0.013	.973	.967	.020 [.018, .021]
3-factor/2nd-order	**972.436**	**332**	**2.929**	**131.598**	**0.012**	**.978**	**.972**	**.018 [.017, .019]**
4-factor	961.065	328	2.930	11.371	0.012	.978	.972	.018 [.017, .019]

[a] For meaning of fit indices, refer to footnote [a] in table 4.7.
[b] $n = 2\,928$.
[c] For the structure of the different models, refer to footnote [c] in table 4.7.

Table 4.12: Validity measures[a] according to Hair et al. (2010) for delivered inducements D in the 3-factor/2nd-order model.

	CR	AVE	MSV	ASV	P_{trans}	P_{relat}	P_{ideat}
D_{trans}	.748	.598	.377	.273	*.774*		
D_{relat}	.818	.476[b]	.377	.233	.614	*.690*	
D_{ideat}	.879	.593	.170	.130	.412	.299	*.770*

[a] See table 4.8 for validity thresholds and criteria.
[b] The value AVE_{relat} violates the $AVE < .5$ threshold.

In summary, there is support for hypothesis 4.1 in general. Psychological contracts are separable into three layers, namely transactional, relational and ideational psychological contracts, for promised inducements P, fulfillment F, and delivered inducement D. Differences between military professionals, civilian employees and senior active reservists are partly significant, but do not justify subsample-specific conceptualizations. In other words, the psychological contract is generalizable among these three subsamples. The factor loadings for the different subsamples are listed in table 4.13 for P and in table 4.14 for F, respectively.

Hypothesis 4.2 suggested correlations between all layers are positive for promised and delivered inducements as well as fulfillment. Table 4.15 presents the correlations for promised and delivered inducements for the psychological contract and of the outcome variables of this chapter, work satisfaction, turnover intention, and work effort. It is noteworthy that the means of perceived promises are all above the mid-point of the $[-2, 2]$ scales, and fulfillment below the mid-point of the same $[-2, 2]$ scales. Further, all correlations between different P scales or between different F scales are positive and highly significant ($p < .001$). However, there may be confounding effects due to the third contract. Thus, partial correlations are derived pairwise for two layers, controlling for the third one.

For promised inducements, $r_{\text{tr}}|_{\text{i}} = .400$, $r_{\text{ti}}|_{\text{r}} = .103$, and $r_{\text{ri}}|_{\text{t}} = .102$. For fulfillment, $r_{\text{tr}}|_{\text{i}} = .318$, $r_{\text{ti}}|_{\text{r}} = .251$, and $r_{\text{ri}}|_{\text{t}} = .287$. For delivered inducements, $r_{\text{tr}}|_{\text{i}} = .338$, $r_{\text{ti}}|_{\text{r}} = .183$, and $r_{\text{ri}}|_{\text{t}} = .185$. Thus, all psychological contract layers correlate pairwise positively within P as well as within F and within D, supporting hypothesis 4.2.

Hypothesis 4.3 postulates mean differences between subsamples for different layers of P. First, oneway ANOVA is performed, indicating that the means are significantly different between groups for transactional ($F(2, 2817) = 27.229$, $p < .001$), relational ($F(2, 2817) = 82.811$, $p < .001$) and ideational ($F(2, 2817) = 7.445$, $p < .001$) contracts. Levene's test for homoscedasticity is significant for transactional ($F(2, 2817) = 4.756$, $p < .001$) and relational ($F(2, 2817) = 3.669$, $p < .05$) contracts and marginally significant for ideational ($F(2, 2817) = 2.994$, $p = .050$) contracts. Therefore, Dunnett's (1980) C is again used for pairwise post-hoc tests.

The mean of senior active reservists in P_{trans} is significantly lower than for military professionals (-0.287 S. D., $p < .001$) and for civilian employees (-0.314 S. D., $p < .001$), which supports hypothe-

Table 4.13: Confirmatory Factor Analysis[a] of promised inducements P with factor loadings for the three subsamples. Items were introduced by the statement «I feel the Swiss Armed Forces are obligated to. . .»

Dimensions / *subdimensions* / items	**Subsamples**		
	military professionals	civilian employees	active reserve
transactional			
monetary ← transactional	.884[b]	.884[b]	.536
. . .pay me for the specific duties I perform	.580	.570	.541
. . .provide a well-defined set of working hours	.259	.414	.539
content ← transactional	.922	.794[b]	.946
. . .require me to do the duties I was hired to perform	.554	.526	.608
. . .provide a job with specific well-defined responsibilities	.668	.726	.640
. . .train me for my specific job duties	.605	.523	.571
relational			
. . .show concern for my personal welfare	.779	.822	.800
. . .make decisions with my interests in mind	.649	.642	.584
. . .provide a workplace where I feel I belong	.705	.642	.610
. . .show concern about my short and long term well-being	.800	.806	.768
. . .value me as an individual	.617	.591	.565
ideational			
. . .provide opportunities for involvement in our cause	.665	.664	.685
. . .commit resources toward advancing the stated cause	.890	.913	.853
. . .maintain culture that promotes our corporate principles	.753	.751	.723
. . .contribute to the stated cause	.874	.908	.881
. . .act as a public advocate of the espoused cause	.764	.833	.776

[a] $n = 2928$. All factor loadings are significant at $p < .001$.
[b] Error variance had to be constrained at subsample level to avoid Heywood cases.

Table 4.14: Confirmatory Factor Analysis[a] of fulfillments F with factor loadings for the three subsamples. Items were introduced by the statement «Please mark the statement that most accurately describes what you actually receive from the Swiss Armed Forces».

Dimensions / *subdimensions* / items	**Subsamples**		
	military professionals	civilian employees	active reserve
transactional			
monetary ← transactional	.938	.950	.805
payment for the specific duties I perform	.554	.581	.610
a well-defined set of working hours	.348	.229	.515
content ← transactional	.850	.877	.846
requirement to do the duties I was hired to perform	.342	.320	.227
a job with specific well-defined responsibilities	.706	.683	.601
training for my specific job duties	.594	.577	.585
relational			
concern shown for my personal welfare	.781	.787	.718
decisions made with my interests in mind	.715	.749	.667
a workplace where I feel I belong	.619	.669	.640
concern about my short and long term well-being	.775	.800	.711
value of me as an individual	.796	.819	.731
ideational			
opportunities for involvement in our cause	.680	.670	.614
commitment of resources toward advancing the stated cause	.836	.799	.776
internal practices and policies that advance the Armed Forces' ideals	.767	.776	.727
contributions to the stated cause	.805	.795	.779
public advocacy of the espoused cause	.717	.689	.619

[a] $n = 2\,928$. All factor loadings are significant at $p < .001$.

Table 4.15: Descriptives and Pearson correlations for promised inducements P, outcome variables (work satisfaction, turnover intention, and work effort) and fulfillment F.

	P_{trans}	P_{relat}	P_{ideat}	WS	TI	WE	F_{trans}	F_{relat}	F_{ideat}
P_{trans}	(.567)								
P_{relat}	.415***	(.830)							
P_{ideat}	.158***	.158***	(.900)						
WS	−.062***	−.073***	.097***	–					
TI	.034	.064**	−.038†	−.516***	(.767)				
WE	.201***	.185***	.183***	.241***	−.150***	(.904)			
F_{trans}	−.037†	−.030	.056**	.337***	−.219***	.080***	(.585)		
F_{relat}	−.117***	−.178***	.014	.467***	−.361***	.028	.421***	(.863)	
F_{ideat}	−.056**	−.077***	−.118***	.238***	−.195***	.009	.377***	.400***	(.855)
Mean	0.934	0.646	0.905	7.364	2.274	5.224	−0.109	−0.258	−0.260
S. D.	0.587	0.746	0.883	1.644	1.174	0.545	0.487	0.660	0.683

[a] $n = 2\,002$ for correlations with TI, and $n = 2\,820$ for any other correlation.
[b] Scale reliabilities (Cronbach's α) along the diagonal in (parentheses).
† $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$ (2-tailed).

sis 4.3.a. The mean of military professionals in P_{relat} is significantly higher than for civilian employees (0.138 S. D., $p < .01$) and for senior active reservists (0.601 S. D., $p < .001$), which supports hypothesis 4.3.b. The mean of civilian employees in P_{ideat} is non-significantly different from those of military professionals (−0.057 S. D., $p > .05$) and even contrary to expectations when compared to senior active reservists (0.118 S. D., $p < .05$). Within civilian employees, the mean difference between those with active reserve status ($n_{\text{civ., reservists}} = 380$) and those without ($n_{\text{civ., not reservists}} = 622$) is investigated by direct t-tests, given that Levene's test indicated homoscedasticity ($F(2, 1000) = 0.237$, $p = .627$), but the mean does not differ significantly ($p = .478$). Because women are over-represented within civilian employees without reserve status, calculation is repeated for males only ($n_{\text{civ., res., male}} = 363$ and $n_{\text{civ., not res., male}} = 528$) to exclude potential gender-induced bias, but mean differences are again non-significant ($p = .757$). Thus, hypothesis 4.3.c is not supported.

To sum up, oneway ANOVA and post-hoc pairwise comparison yield partial support for hypothesis 4.3. With regard to transactional and relational contracts, subsamples show patterns according to expectations, but with regard to ideational contracts, only one pattern is significant, with signs contrary to expectations.

Before the effects of the psychological contract are evaluated, table 4.16 presents the impact of different outcome variables on perceived promises and contract fulfillment. These findings are of practical interest to the Swiss Armed Forces, but the approach may be used by practitioners in other organizations to determine groups of interest. For instance, middle-aged military professionals are particularly prone to underfulfilled relational contracts, and civilian employees of higher educational degree suffer from underfulfilled transactional contracts. Furthermore, individuals of Latin Switzerland

perceive in general higher transactional and relational promises. However, these interpretations are only exemplary; a detailed sample-specific evaluation would go beyond the scope of the present dissertation.

Table 4.16: Antecedents of the psychological contract. Variables explaining less than 2% in variance have been omitted, even if significant. The following control variables failed these criteria globally: *TENURE*, *EMPLO*, *GENDER*.

Layer	Antecedent	Subsamples		
		military professionals	civilian employees	active reserve
P_{trans}	$RANK$	$-.305^{***}$		
	δ_{latin}	$.281^{***}$	$.267^{***}$	$.172^{***}$
	LK		$-.164^{***}$	
	AGE			$-.256^{***}$
P_{relat}	δ_{latin}	$.163^{***}$	$.185^{***}$	$.231^{***}$
	LK		$-.117^{***}$	
P_{ideat}	–			
F_{trans}	$EDUC$		$-.174^{***}$	
F_{relat}	AGE	-1.624^{***}		
	AGE^2	1.479^{***}		
	δ_{latin}		$-.141^{***}$	$-.121^{***}$
	$EDUC$		$-.111^{***}$	
	$RANK$			$.200^{***}$
	$WAGE$			$-.120^{***}$
F_{ideat}	LK	$-.335^{***}$		
	$RANK$	$.460^{***}$		
	$\delta_{\text{officer}}{}^{a}$	$-.268^{***}$		
	δ_{latin}		$-.153^{***}$	$-.179^{***}$

[a] δ_{officer} should only be interpreted in combination with $RANK$; see chapter 3.6.4.

4.4.2 Effects of the psychological contract

The set of outcome-related hypotheses 4.4 to 4.6 is tested using hierarchical linear regressions. For each outcome variable, that is work satisfaction, turnover intention, or work effort, I chose control variables according to their potential relevance to the relationship, based on table 4.16. Variables without significant impact on the results were again dropped, for instance $EDUC$ in the case of work effort. For an overview of control variables, refer to chapter 3.6.4. As a second step, terms linear in F and P are added. The third step was to add an interaction term $F \times P$ and quadratic terms F^2, P^2. In the most straightforward interpretation, according to equation (4.3), the impact of F is revealed when the absolute level is set to $P \doteq 0$. Thus, slope and curvature of the F dependency correspond to the coefficients of F, that is $\widetilde{\beta}_1$, and of F^2, $\widetilde{\beta}_3$. Herein, $\widetilde{\beta}_i$ refers to standardized estimates.

The basic suggestion of hypothesis 4.4 is that psychological contract fulfillment leads to higher work satisfaction, but with diminishing returns. Results are provided in table 4.17. Work satisfaction increases

Table 4.17: Hierarchical polynomial regression[a] of transactional, relational and ideational promised inducements and fulfillment on *work satisfaction*. $\ell = t, r, i$, respectively.

	transactional			relational			ideational		
Step→	1	2	3	1	2	3	1	2	3
AGE	0.139^{***}	0.088^{***}	0.085^{***}	0.139^{***}	0.162^{***}	0.171^{***}	0.139^{***}	0.134^{***}	0.134^{***}
$EDUC$	-0.055^{**}	-0.020	-0.019	-0.055^{**}	$-0.028^{\dagger}$	-0.032^{*}	-0.055^{**}	-0.040^{*}	-0.043^{*}
F_ℓ		0.318^{***}	0.257^{***}		0.472^{***}	0.368^{***}		0.249^{***}	0.210^{***}
P_ℓ		-0.053^{**}	-0.016		-0.006	0.008		0.123^{***}	0.106^{***}
F_ℓ^2			-0.141^{***}			-0.203^{***}			-0.104^{***}
$F_\ell \times P_\ell$			0.054			-0.004			0.009
P_ℓ^2			-0.015			-0.007			0.035
R^2	.022	.124	.144	.022	.244	.274	.022	.092	.101
ΔR^2	.022	.101	.020	.022	.222	.030	.022	.069	.009
F_{inc}	32.211^{***}	162.959^{***}	21.876^{***}	32.211^{***}	413.738^{***}	38.356^{***}	32.211^{***}	107.569^{***}	9.584^{***}

[a] $n = 2\,820$. Standardized coefficients.
$^{\dagger}\, p < .1$, $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$ (2-tailed).

with AGE, but $EDUC$ is not a stable predictor, when transactional fulfillment is included. In accordance with predictions, higher transactional fulfillment leads to higher work satisfaction ($\widetilde{\beta}_1 = 0.257,\ p < .001$) and it diminishes for high overfulfillment ($\widetilde{\beta}_3 = -0.141,\ p < .001$). Thus, hypothesis 4.4.a is supported. With regard to the relational contract, the same relationship was postulated and was found to be ($\widetilde{\beta}_1 = 0.368,\ p < .001$ and $\widetilde{\beta}_3 = -0.203,\ p < .001$). The relational contract explains $R^2 = 25.2\%$ of the variance in work satisfaction, more than transactional (12.0%) and ideational (7.9%) together, consistent with predictions. Thus, hypothesis 4.4.b is supported. Finally, with regard to the ideational contract, the same pattern is found where work satisfaction increases with higher fulfillment $\widetilde{\beta}_1 = 0.210,\ p < .001$ and with a significant saturation effect $\widetilde{\beta}_3 = -0.104,\ p < .001$). Therefore, part c and consequently, the whole hypothesis 4.4 is supported. Effect sizes may be considered small to medium for transactional ($f^2 = .05$) and ideational ($f^2 = .07$), but medium ($f^2 = .18$) for relational contracts.

For turnover intention, the effects of psychological contract fulfillment are expected to be inverse. Indeed, turnover intention decreases with higher transactional fulfillment ($\widetilde{\beta}_1 = -0.132,\ p < .01$), as can be seen in table 4.18, with a highly significant ($p < .001$) saturation effect $\beta_3 = .094$. Therefore, hypothesis 4.5.a is supported. Beyond the hypothesis, there is also a significant ($p < .05$) interaction effect ($\beta_4 = -.094$). Thus, the decreasing effect of transactional fulfillment F_{trans} on turnover intention TI diminishes for high levels of overfulfillment, and in general, the effect is stronger at higher levels of perceived transactional promises P_{trans}. An alternative interpretation, where F_{trans} is regarded as a moderator of the $P_{\text{trans}} \rightarrow TI$, is warranted by the results of hypothesis 4.7.

Higher relational fulfillment also reduces turnover intention ($\widetilde{\beta}_1 = -0.176,\ p < .001$), again with a saturation effect ($\widetilde{\beta}_1 = 0.142,\ p < .001$). Considerably more variance is explained by the relational layer ($R^2 = 15.8\%$) than by transactional contracts ($R^2 = 5.4\%$). Thus, hypothesis 4.5.b is fully supported.

As expected, higher ideational fulfillment leads to lower turnover intention in the case of military professionals ($\widetilde{\beta}_1 = -0.214$, $p < .001$) and in the case of civilian employees with reserve status ($\widetilde{\beta}_1 = -0.295$, $p < .001$), but with non-significant ($p > .05$) saturation effects, which is in partial accordance with hypothesis 4.5.c.i. Hypothesis 4.5.c.ii predicted a ∩-shape for civilian employees without reserve status. Therefore, the coefficient of F must be small or even insignificant, but the coefficient of F^2 negative. This is not the case, because $\widetilde{\beta}_1 = -0.152$, $p < .01$ and $\widetilde{\beta}_3 = 0.037$, $p > .1$. Table 4.19 provides the subsample-specific models. To conclude, hypothesis 4.5 is partly supported. Effect sizes vary for transactional ($f^2 = .05$), relational ($f^2 = .13$), and ideational ($f^2 = .04$) layers.

Table 4.18: Hierarchical polynomial regression of transactional, relational, and ideational promised inducements and fulfillment on *turnover intention* for employees.[a] $\ell = t, r, i$, respectively.

	transactional			relational			ideational		
Step→	1	2	3	1	2	3	1	2	3
AGE	−0.095***	−0.086***	−0.083***	−0.095***	−0.107***	−0.109***	−0.095***	−0.091***	−0.091***
GENDER	0.066**	0.068**	0.069**	0.066**	0.065**	0.063**	0.066**	0.072***	0.073***
EMPLO	0.075**	0.059*	0.058*	0.075**	0.080***	0.081***	0.075**	0.074**	0.073**
F_ℓ		−0.207***	−0.132**		−0.366***	−0.273***		−0.198***	−0.181***
P_ℓ		0.026	−0.019		0.012	−0.075*		−0.060**	−0.066*
F_ℓ^2			0.094***			0.156***			0.049*
$F_\ell \times P_\ell$			−0.094*			−0.005			−0.002
P_ℓ^2			0.029			0.099**			0.003
R^2	.025	.069	.079	.025	.160	.183	.025	.066	.068
ΔR^2	.025	.043	.011	.025	.135	.023	.025	.041	.002
F_{inc}	17.177***	46.545***	7.589***	17.177***	160.547***	18.712***	17.177***	43.630***	1.592

[a] $n = 2\,002$. Standardized coefficients.
† $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$ (2-tailed).

Hypothesis 4.6 suggests how work effort is influenced by the relative fulfillment of the psychological contract. The results for the dependent variable *work effort* and the transactional psychological contract (as the independent construct) with respect to the three different subsamples can be found in table 4.20.

It was hypothesized that among military professionals and civilian employees, work effort would increase with higher F_{trans}, but at a decreasing rate. For military professionals, the corresponding coefficient of F_{trans} is non-significant ($\widetilde{\beta}_1 = 0.048$, $p > .1$). Instead, the level of perceived promises P_{trans}, has a highly significant ($p < .001$) impact on work effort, $\widetilde{\beta}_2 = 0.257$. For civilian employees, the expected relationship is insignificant, too ($\widetilde{\beta}_1 = -0.013$, $p > .1$), but the effect of P again highly significant ($p < .001$) at the linear level ($\widetilde{\beta}_2 = 0.226$). For both subsamples, when introducing 2nd order terms, the interaction term is relatively considerable ($\widetilde{\beta}_4 = 0.109, 0.091$), but non-significant.[44] According to expectations, the overall effect of transactional contracts is weaker for senior active reservists, explaining

44 This happens to be because standard errors are increased due to multicollinearity, which is characteristic for polynomial regression analysis (Shanock, Baran, Gentry, Pattison, & Heggestad, 2010). The issue persists despite the usual remedy applied, that is centering scales at their mid points before regression (Edwards, 1994).

Table 4.19: Stepwise polynomial regression of ideational promised inducements and fulfillment on *turnover intention* for military professionals, civilian employees with active reserve status and civilian employees without active reserve status.

	ideational (mil. professionals)			ideational (civ. employees, res.)			ideational (civ. employees, not res.)		
Step→	1	2	3	1	2	3	1	2	3
AGE	-0.094^{**}	-0.103^{**}	-0.104^{**}	$-0.096^{\dagger}$	$-0.101^{\dagger}$	$-0.099^{\dagger}$	-0.168^{***}	-0.157^{***}	-0.158^{***}
GENDER	0.011	0.012	0.012	0.044	0.062	0.055	$0.068^{\dagger}$	$0.071^{\dagger}$	$0.067^{\dagger}$
EMPLO	0.050	$0.054^{\dagger}$	0.051	0.019	0.005	0.005	0.132^{**}	0.131^{**}	0.138^{**}
F_i		-0.214^{***}	-0.160^{***}		-0.295^{***}	-0.300^{***}		-0.154^{***}	-0.152^{**}
P_i		$-0.057^{\dagger}$	-0.070		-0.046	-0.062		-0.060	-0.025
F_i^2			0.053			0.058			0.037
$F_i \times P_i$			-0.054			0.036			0.009
P_i^2			-0.005			0.043			-0.053
R^2	.014	.061	.065	.013	.099	.105	.079	.105	.107
ΔR^2	.014	.047	.003	.013	.086	.006	.079	.027	.002
F_{inc}	4.832^{**}	24.770^{***}	1.226	1.649	17.764^{***}	0.872	17.598^{***}	9.123^{***}	0.509

[a] $n = 1\,000,\ 380,\ 622$. Standardized coefficients.
$^{\dagger}\ p < .1,\ ^{*}p < .05,\ ^{**}p < .01,\ ^{***}p < .001$ (2-tailed).

Table 4.20: Hierarchical polynomial regression[a] of transactional promised inducements and fulfillment on *work effort*, for different subsamples.

	military professionals			civilian employees			senior active reservists		
Step→	1	2	3	1	2	3	1	2	3
AGE	0.160^{***}	0.173^{***}	0.173^{***}	0.067^{*}	0.066^{*}	0.066^{*}	0.026	0.045	0.047
GENDER	0.069^{*}	$0.057^{\dagger}$	$0.056^{\dagger}$	0.071^{*}	0.066^{*}	0.069^{*}	-0.011	-0.011	-0.005
F_t		0.048	-0.042		0.044	-0.037		0.089^{*}	0.071
P_t		0.257^{***}	0.188^{*}		0.226^{***}	0.197^{**}		0.102^{**}	0.181^{*}
F_t^2			-0.011			0.049			-0.011
$F_t \times P_t$			0.109			0.091			0.011
P_t^2			0.091			0.037			-0.087
R^2	.028	.093	.096	.008	.062	.070	.001	.015	.018
ΔR^2	.028	.065	.004	.008	.054	.008	.001	.015	.002
F_{inc}	14.227^{***}	35.626^{***}	1.342	4.205^{*}	28.777^{***}	2.742^{*}	0.333	6.033^{**}	0.588

[a] $n = 1\,000,\ 1\,002,\ 818$ for the three subsamples. Standardized coefficients.
$^{\dagger}\ p < .1,\ ^{*}p < .05,\ ^{**}p < .01,\ ^{***}p < .001$ (2-tailed).

only $\Delta R^2 = 1.5\%$ whereas for civilian employees and military professionals, 9.3% and 7.0% of variance in work effort is explained beyond AGE and $GENDER$. Effect sizes are small to medium for transactional ($f^2 = .06$), and relational ($f^2 = .06$) fulfillment, but only very small for ideational fulfillment ($f^2 = .014$).

With respect to the whole sample (table 4.21), the predicted effect of transactional fulfillment is highly significant ($\beta_1 = 0.065$, $p < .001$) in the linear model, but the effect of promised inducements is more than three times bigger ($\beta_1 = 0.202$, $p < .001$). Introducing 2nd order terms renders the direct effect of F_{trans} insignificant, but the interaction effect becomes significant, $\beta_4 = 0.090$, $p < .05$. Thus, hypothesis 4.6.a is only partly supported, and instead, a strong impact of perceived promises and an interaction effect between fulfillment and promises is found. Both of these will be discussed in chapter 4.5.1.

Table 4.21: Hierarchical polynomial regression[a] of transactional, relational and ideational promised inducements and fulfillment on *work effort*. $\ell = $ t, r, i, respectively.

	transactional			relational			ideational		
Step→	1	2	3	1	2	3	1	2	3
AGE	0.141^{***}	0.132^{***}	0.130^{***}	0.141^{***}	0.128^{***}	0.130^{***}	0.141^{***}	0.139^{***}	0.137^{***}
$GENDER$	0.053^{**}	0.043^{*}	0.043^{*}	0.053^{**}	0.053^{**}	0.054^{**}	0.053^{**}	0.052^{**}	0.055^{**}
F_ℓ		0.065^{***}	-0.009		0.067^{***}	0.096^{***}		0.027	$0.042^{\dagger}$
P_ℓ		0.202^{***}	0.186^{***}		0.186^{***}	0.076^{**}		0.185^{***}	0.080^{***}
F_ℓ^2			0.000			-0.007			-0.007
$F_\ell \times P_\ell$			0.090^{*}			-0.035			-0.015
P_ℓ^2			0.032			0.141^{***}			0.163^{***}
R^2	.023	.067	.069	.023	.058	.068	.023	.057	.073
ΔR^2	.023	.044	.002	.023	.034	.010	.023	.034	.016
F_{inc}	33.432^{***}	66.136^{***}	$2.357^{\dagger}$	33.432^{***}	51.412^{***}	10.290^{***}	33.432^{***}	50.159^{***}	16.229^{***}

[a] $n = 2\,820$. Standardized coefficients.
$^{\dagger}p < .1$, $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$ (2-tailed).

Table 4.21 further includes results for relational and ideational fulfillment. Here, it was postulated that higher relational fulfillment would increase work effort at a stable rate, corresponding to the empirical findings ($\widetilde{\beta}_1 = 0.096$, $p < .001$ and $\widetilde{\beta}_3 = -0.007$, $p > .1$). Meanwhile, the effect was expected to be stronger than in the case of transactional contracts. With respect to fulfillment only, this is indeed the case. However, taking into account both fulfillment and promises, the relational layer does explain about as much variance ($R^2 = 4.5\%$) in WE as the transactional layer ($R^2 = 4.6\%$). Thus, hypothesis 4.6.b is only partially supported, with small effect size ($f^2 = .04$).

It was further hypothesized that the relationship between the ideational fulfillment and work effort is curvilinear, with a ∪-shape. However, there is hardly any significant relationship between ideational contract and work effort ($\widetilde{\beta}_1 = 0.042$, $p < .1$ and $\widetilde{\beta}_3 = -0.007$, $p > .1$). Consequently, hypothesis 4.6.c is not supported, with a rather small effect size ($f^2 = .05$). To conclude, there is only marginal support for hypothesis 4.6 concerning the postulated relationships of the psychological contract fulfillment and work effort, but there are unexpected interaction effects.

Finally, the impact of the absolute level of fulfillment on the outcome variables is investigated. The corresponding coefficients $\widetilde{b}_2$ and $\widetilde{b}_5$ are collected within the first pair of columns of table 4.22.

Hypothesis 4.7 proposed that work effort increases and turnover intention decreases with higher levels of promised inducements. For work satisfaction, I expected a zero effect.

Regarding work satisfaction, findings mostly correspond to the propositions. Transactional and relational promises have no significant impact on work satisfaction ($p > .05$), yet ideational promised inducements P increase satisfaction, although no effect was hypothesized.

Regarding turnover intention, the results strongly depend on the different layers. Transactional promises do not impact turnover intentions directly, but moderate the effect of fulfillment on turnover intention (table 4.18). Transactional promises have a decreasing impact at high levels of transactional fulfillment, virtually no effect at average levels of transactional fulfillment, and an increasing (that is detrimental) effect at low levels of transactional fulfillment. Relational promises have a smoothly $\cup$-shaped impact on turnover intentions, which was not anticipated. Ideational promises decrease turnover intentions, as expected.

Regarding work effort, the hypothesis is supported. A higher level of P always leads to higher work effort (Note that F is controlled for in this statement). For relational and ideational contracts, the effect even increases for higher levels of P. To summarize for all outcomes and layers, hypothesis 4.7 is only partly supported.

4.4.3 Methodological variants

To conclude this chapter, comparisons of some results for different operationalizations of the relative line are integrated in table 4.22. In this table, the 2nd pair of columns ($\widetilde{\beta}_1$ and $\widetilde{\beta}_3$) corresponds to the standard operationalization applied throughout chapter 4.4.2. In this case, coefficients of F and F^2 are interpreted directly, according to equation (4.3). The technical alternative, as suggested in chapter 4.3.2, includes perturbation terms, according to equation (4.6). The corresponding general results are given in the 3rd pair of columns in table 4.22. Apparently, the results are comparable with regard to direction, size, and significance levels. Thus, the approach of equation (4.6) corresponds to equation (4.3), which more closely follows Edwards (1994). Given the intuitive sense of the equation (4.3) and taking into account that the alternative equation (4.6) needs considerably more calculative effort (confidence intervals can be derived only by means of bootstrapping) I suggest direct interpretation of $\widetilde{b}_1$ and $\widetilde{b}_3$ instead.

The second alternative includes a transformation of F, according to the equation (4.9), following Kahneman and Tversky's (1979) prospect theory. Again, these results, found in the 4th pair of columns in table 4.22 ($\widehat{\beta}_1$ and $\widehat{\beta}_3$) do not differ substantially. Parsimony suggests relying on the straightforward implementation of equation (4.3), as has been done throughout the chapter.

Table 4.22: Slopes and curvatures along the lines of interest, according to different operationalizations of the hierarchical polynomial regression.[a]

contract layer	**outcome variable**	absolute line		relative line[b]		relative line[c]		relative line[d]	
		slope	curvature	slope	curvature	slope	curvature	slope	curvature
		$\widetilde{b}_2$	$\widetilde{b}_5$	$\widetilde{b}_1$	$\widetilde{b}_3$	$\widetilde{b}_1 - \frac{\widetilde{b}_2}{2}$	$\widetilde{b}_3 - \frac{\widetilde{b}_4}{2} + \frac{\widetilde{b}_5}{4}$	$\widehat{b}_1$	$\widehat{b}_3$
transactional	work satisfaction	-0.046	-0.023	0.868^{***}	-0.491^{***}	0.891^{***}	-0.571^{***}	0.689^{***}	-0.520^{***}
	turnover intention	-0.038	0.030	-0.319^{**}	0.227^{***}	-0.300^{*}	0.324^{***}	-0.255^{*}	0.227^{**}
	work effort	0.173^{***}	0.016	-0.010	0.000	$-0.097^{\dagger}$	-0.037	0.002	0.006
relational	work satisfaction	0.017	-0.011	0.918^{***}	-0.426^{***}	0.909^{***}	-0.425^{***}	0.771^{***}	-0.471^{***}
	turnover intention	-0.206^{***}	0.139^{***}	-0.506^{***}	0.237^{***}	-0.403^{***}	0.273^{***}	-0.423^{***}	0.259^{***}
	work effort	0.055^{**}	0.069^{***}	0.080^{***}	-0.005	$0.052^{\dagger}$	0.025	0.076^{**}	-0.007
ideational	work satisfaction	0.198^{***}	0.041	0.505^{***}	-0.221^{***}	0.406^{***}	-0.218^{***}	0.415^{***}	-0.261^{***}
	turnover intention	-0.092^{*}	0.006	-0.321^{***}	$0.069^{\dagger}$	-0.275^{***}	0.082^{*}	-0.299^{***}	0.072
	work effort	0.049^{***}	0.062^{***}	$0.033^{\dagger}$	-0.005	0.009	0.015	0.023	-0.010

[a] $n = 2\,002$ for turnover intention-related coefficients, and $n = 2\,820$ else. Coefficients are non-standardized.
[b] According to equation (4.3).
[c] According to equation (4.6). Significance levels based on bootstrapping ($B = 3\,000$), using percentile method with bias correction.
[d] According to equation (4.3) and transformation $\widehat{F}$ according to equation (4.9).
† $p < .1$, $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$ (2-tailed).

Table 4.23: Overview of findings for hypotheses regarding the structure (chapter 4.4.1) and effects (chapter 4.4.2) of the psychological contract.

Hypo.	Focus	Findings	Comment
4.1	Separability of psych. contract into three layers for P, F, and D	supported	A 2nd-order structure was not expected
4.2	Pairwise positive correlations of the three layers for P, F, and D	supported	–
4.3	Mean differences of contract layers in subsamples	partially supported	Supported for transactional and relational, but not for ideational layer
4.4	Effect of psychological contract on work satisfaction (WS)	supported	–
4.5	Effect of psychological contract on turnover intention (TI)	partially supported	Mostly supported, but not with respect to subsample specific propositions
4.6	Effect of psychological contract on work effort (WE)	marginally supported	P was stronger than F, and significant interaction $P_{trans} \times F_{trans}$ occurred
4.7	Effect of P on all three outcome variables (WS, TI, WE)	partially supported	Fully supported for WE, partially for WS, and marginally for TI

4.5 Discussion

An overview of all hypotheses in chapter 4.4 can be found in table 4.23.

4.5.1 Summary and contribution

With regard to hypotheses 4.1 to 4.3, I conclude that CFA provides strong empirical evidence to the existence of the psychological contract in three different layers, namely a transactional, a relational and an ideational contract. This holds true for all elements of the psychological contract, namely promised inducements P, fulfillment F, and delivered inducements D. Model fits and validity measures rule out that two or even all of the layers form a common dimension. Overlap between the three layers was found both by means of oblique rotation in EFA, including correlations up to .555 in the case of F layers, and using CFA with covariances up to .67, especially for F. Nevertheless, discriminant and convergent validity was granted for components and layers of the psychological contract. In combination, these findings strongly support the suggested conceptualization of the psychological contract.

Contrary to expectations, a 2nd-order structure with transactional components decaying into *monetary* and *content* elements was found for P, F, and D. These models grant both good validity measures and acceptable fit indices in CFA. Two alternatives, a 4-factor solution without a 2nd-order structure, and subsample specific contracts, are outperformed in terms of fit and validity:

Construct reliability of the four-factor solution was not satisfactory, with only 2 (*monetary*) and 3 (*content*) items remaining for the additional factors. In contrast, merging these factors into one 2nd-

order factor yields a model free of validity concerns and with only a slightly inferior model fit. Yet the 3 transactional-content items form a valid scale, with Cronbach's $\alpha = .608$, acceptable for a scale with few items (Cortina, 1993). Chapter 6 will refer to this particular scale.

Subsample-specific psychological contracts, where for example, P_{TRAIN} loads on P_{trans} for employees and on P_{relat} for reservists, would have appeal with regard to theoretical development of the construct, potentially adding to the debate about the affiliation of some specific content items. Especially, the role of *training* is disputed. Usually attributed to the transactional contract (e. g., Rousseau, 1990; Hui et al., 2004), Arnold (1996) found that training may be relational, and yet others argued that training may even form an independent contract dimension (Coyle-Shapiro & Kessler, 2000). However, subsample specific models suffer from construct validity, too. Again, more items would have been needed to further test the approach of subsample-specific contracts.

Further investigations of the 3-factor/2$^{\text{nd}}$-order model with regard to subsample differences mostly confirmed expectations. Transactional contracts are weaker for senior active reservists than for military professionals and civilian employees. Also, relational contracts are strongest for military professionals. However, senior active reservists experience lower ideational contracts than expected. This, however, does not challenge the psychological contract construct, but rather some common beliefs of military sociology. In fact, these findings contradict at least partially Moskos' (1977a) dominant claim (Miller, 2009) that drafted personnel was more likely to be institutionally bound, whereas volunteers tend to adopt an occupational understanding. Chapter 6 will focus on this classic assumption in detail.

The present findings corroborate the existence of a 3-dimensional psychological contract, and yield evidence across three quite different subsamples, namely military professionals, civilian employees, and senior active reservists of the Swiss Armed Forces. Evidence for transactional contracts among senior active reservists suggests this layer exists even in the absence of an employee relationship. Thus, omitting the transactional contract in a volunteer[45] environment as Bingham et al. (2014) or Vantilborgh et al. (2014) do may be premature.

The next paragraphs discuss the impact of the contract fulfillment F on the outcomes Z, namely work satisfaction, turnover intention, and work effort, according to hypotheses 4.4 to 4.6. Findings with regard to promised inducements P, as suggested by hypothesis 4.7, are integrated in these paragraphs. Figures 4.6 to 4.8 each show two diagrams. On the left, the impact of fulfillment F on the outcome variable Z is plotted; on the right, the same is done for promised inducements P. Calculations are based on unstandardized coefficients of the regression analysis. To avoid interpretation beyond the credible range, relationships are plotted only for a domain from 2 S. D. of the sample below to 2 S. D. of the sample above the mean of F and P, respectively. Also, P is set at its mean value for the F-Z-diagrams, and F is set at its mean value for the P-Z-diagrams.

With regard to the expected outcomes of psychological contract fulfillment, results are most apparent in the case of work satisfaction. Strongly significant findings buttress predictions in both

45 Please mind the cross-over of terminologies. In Organizational Behavior, *volunteers* denotes members of organizations without a fixed contract. In military sociology, *volunteers* denotes members of Armed Forces with a fixed contract, i. e. employees.

linear and quadratic terms for all layers of the psychological contract, lending strong support for the importance of the concept. Also, promised inducements P do not affect work satisfaction, with the exception of a very weak effect of the ideational contract. The estimated relationships are plotted in figure 4.6.

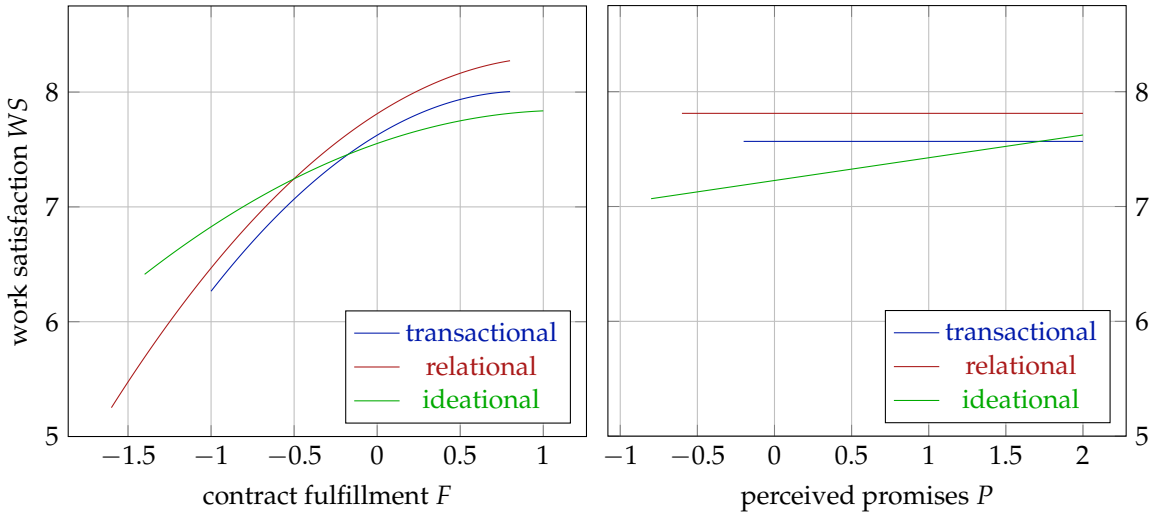

Figure 4.6: The effect of transactional, relational, and ideational contract fulfillment (left) and perceived promises (right) on work satisfaction. Estimates are according to non-standardized coefficients from the highest order model with significant F_{inc} in table 4.17. Nonsignificant coefficients set to 0. Interaction terms $F_\ell \times P_\ell$ are insignificant ($p > .05$) for all layers ℓ.

Figure 4.7 shows conceivable findings for turnover intentions. The higher the degree to which a contract is fulfilled, the lower the turnover intentions. However, the particular ∩-shape predicted for the ideational contract of civilian employees without reserve status was not found. It remains open whether the suggestions from Bunderson and Thompson (2009), where an underfulfillment of the ideational contract fosters the relation to the organization are generally challenged, or just do not apply in the present sample. At least, the decreasing impact of the ideational contract on turnover intentions is considerably weaker than for the relational or the transactional contract.

In addition, transactional contracts imply a significant interaction effect. Figure 4.7 offers two interpretations. According to the left plot, the decreasing impact of transactional fulfillment is stronger for high than for low levels of transactional promises. This makes sense; however, the alternative interpretation seems more powerful. According to the right plot, the effect of transactional promises reverses for different fulfillment levels. In the case of overfulfillment, transactional promises decrease turnover intentions. In the case of average fulfillment, the effect almost vanishes. In the case of underfulfillment, higher transactional promises even lead to higher turnover intentions. This finding is very intuitive and lends strong report to the predictive abilities of PRA in the present operationalization.

With respect to work effort, the situation is quite different. Figure 4.8 illustrates how psychological contracts indeed impact work effort, although not in the way hypothesized. The effect of transactional

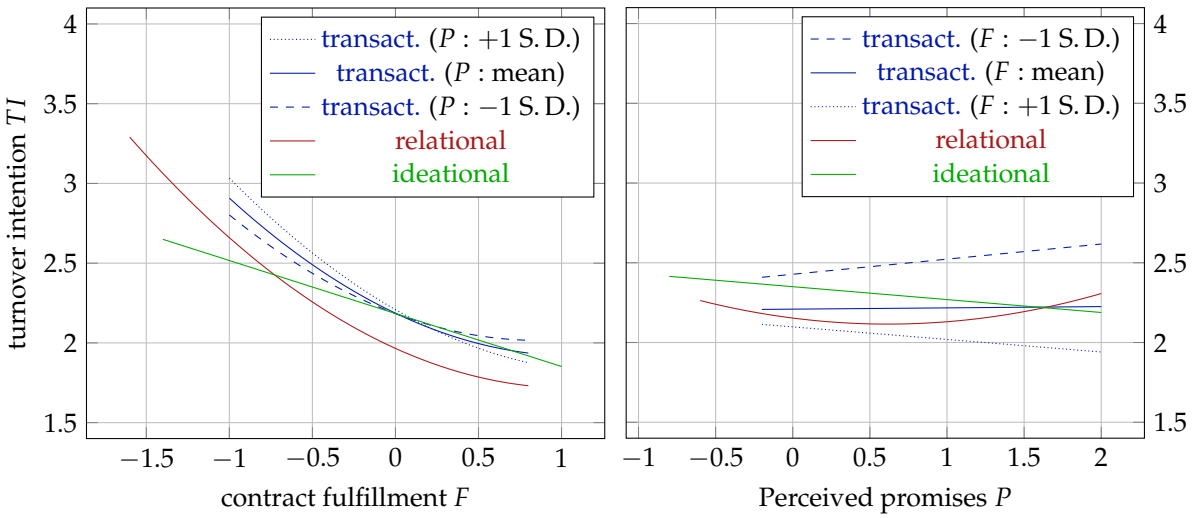

Figure 4.7: The effect of transactional, relational, and ideational contract fulfillment on turnover intention. Estimates are according to coefficients from the highest order model with significant F_{inc} in table 4.18. The interaction term for $P_t \times F_t$ may be interpreted either as P moderating the $F \rightarrow WE$ relationship (left plot), or as F moderating the $P \rightarrow WE$ relationship (right plot). Interaction terms $F_\ell \times P_\ell$ are insignificant ($p > .05$) for the other two layers.

fulfillment basically becomes relevant at high P levels only. That is, for individuals perceiving weak promises, fulfillment of these promises barely affects their work effort. In contrast, individuals with strong perceived promises are more sensitive to under- and overfulfillment, which is conceivable. For those who perceived only a few economic promises, it seems less relevant whether these promises are fulfilled or not. The higher the perceived promises are, the more important their fulfillment. This moderation effect cannot be found for relational and ideational contracts; there, fulfillment is equally important for low and high levels of promises.

Beyond this interaction, the level of perceived promises directly affects work effort. Given constant fulfillment, individuals report higher efforts if they perceive higher promises. Apparently, individuals respond to the promises, and not to the fulfillment. This is a notable finding, suggesting that individuals contribute *in good faith*, even when their contract is underfulfilled, rather than retaliate.

These findings for work effort seem reasonable. However, the absence of the substantial impact of relational and ideational fulfillment on effort is rather astounding. This may be due to the very strong skew in this self-report measure, with a mean of 5.224 on a 6-point scale and comparatively low standard deviations of 0.425. Consequently, the different layers explained less variance in work effort, compared to what Vantilborgh et al. (2014) found. The issue may thus be specific to the sample.

In conclusion, the study at hand contributes to the literature in six ways. First, I advance a suggestion by Petersitzke (2009), stating that the psychological contract is a mental model of the exchange relationship. With this I overcome the antagonism between the mental model approach and social exchange theory (ibid.). In her groundwork (essential to the present study) Petersitzke elaborates how

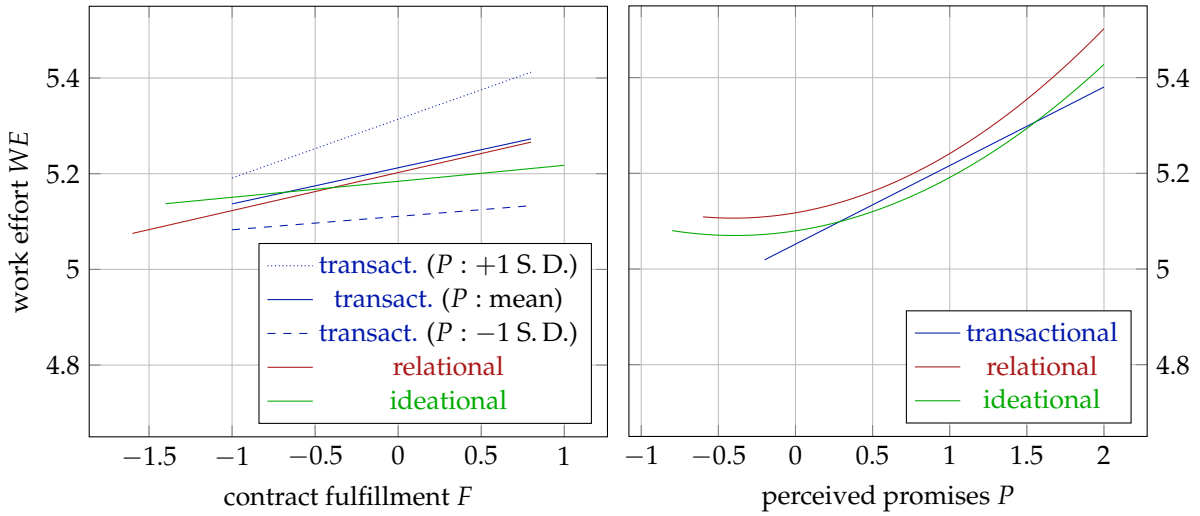

Figure 4.8: The effect of transactional, relational, and ideational contract fulfillment (left) and perceived promises (right) on work effort. Estimates are according to non-standardized coefficients from the highest order model with significant F_{inc} in table 4.21. The interaction term for $P_{\text{t}} \times F_{\text{t}}$ is integrated as a moderating effect of P on the $F \rightarrow WE$ relationship. Interaction terms $F_{\ell} \times P_{\ell}$ are insignificant ($p > .05$) for the other two layers.

these understandings define the level of analysis, that is the dyadic relation or the individual, and identifies the body of literature from which psychological contract theory may draw from. From there, it is only a short step to my suggestion, that psychological contracts as mental models reflect economic, social, and ideological exchange (Blau, 1964).

Second, I provide evidence that – according to the exchange of economic, socio-emotional, and ideological exchange – the psychological contract entails a transactional, relational, and ideational layer (Rousseau, 1990; Thompson & Bunderson, 2003). This is a primer for the existence of the three psychological contract layers in a military sample, and is only the second study to investigate the three layers simultaneously. Furthermore, the separation of the transactional contract into a transactional-monetary and a transactional-content sub-factor presents a new view of this layer, which was rather dismissively treated in the first decade after Rousseau (1989). Although evidence on the separability of these sub-factors is only preliminary, the suggestion may inspire the potential development of transactional sub-factors. In addition, chapter 6 will come back to these findings, showing how transactional-monetary and transactional-content sub-contracts relate independently to different work orientations.

Third, regarding the structure of psychological contracts, I provide evidence that the layers represent different dimensions (Coyle-Shapiro & Kessler, 2000), rather than a single dimension ranging from transactional to relational (or ideational) contracts (e. g., Millward & Hopkins, 1998). This finding substantiates the mental model approach; mental models share the same structure with the original they are reflecting (Johnson-Laird, 2004). Exchange relationships may comprise economic, social, or ideological elements. Yet such relationships are not exclusive and thus, independent layers rather than opposite ends were expected.

Fourth, I use a new operationalization, combining direct measurement of promises and fulfillment with PRA (Edwards & Parry, 1993). PRA overcomes the issues of difference scores, but it has been criticized for no longer directly addressing breach and fulfillment (N. Conway et al., 2011). Applying PRA to promises and fulfillment rather than to promises and deliveries (Schurer Lambert et al., 2003) combines the advantages of both approaches. The findings regarding work satisfaction, turnover intention, and work effort are conceivable. Thus, the present operationalization is a powerful approach to advance the knowledge of psychological contracts.

Fifth, I consolidate generalizability of the psychological contract among the three layers. The study was conducted across different subsamples from reservists to civilian and military employees, opening new opportunities to research in Military Sociology. In applying robust Organizational Behavior measures into military settings, the study contributes to bringing Armed Forces and Society into the research «mainstream», a deficiency that has been criticized previously (see Gade, 2003). Moreover, I show that transactional layers exist in psychological contracts of volunteers, although this has usually been ignored in previous research (e. g., Vantilborgh et al., 2014; Bingham et al., 2014).

Sixth, I provide evidence by comparing organizationally relevant outcomes of the three contract layers. In previous research, only a few studies have addressed ideational contracts yet. Mostly, these studies did not include all three contracts (Bunderson & Thompson, 2009; Bal & Vink, 2011; Vantilborgh et al., 2014). Beyond the creation of the ideational scale (Bingham, 2005), the only exception including all three contracts takes a social hierarchy view on a sample of $n = 54$ employees (Bingham et al., 2014). In contrast, I compare outcomes of the three contract layers in terms of fundamental Organizational Behavior, namely work satisfaction, turnover intention, and work effort, and for $n = 2\,820$ individuals. This further substantiates the organizational relevance of all three contract layers.

In addition, I suggest practical implications, directly addressing the Swiss Armed Forces, but transferable to other armed forces, public administration, and organizations from the private sector.

Moreover, the present conceptualization of the psychological contract into three layers opens the doors to relating the concept with other constructs. This is the subject of chapters 5 and 6. The next chapter provides an outlook to motivate such an undertaking.

4.5.2 Relations to other constructs

The psychological contract, as developed in this study, provides two docking points for further constructs. Namely, one may ask how other contracts are linked to

- the perceived *promised* inducements within the psychological contract;
- the (perceived) *fulfillment* of the psychological contract.

Delivered inducements could be seen as a third docking point; however, this element of the construct was not measured directly. Nonetheless I will refer to this notion in the concluding chapter 7.

Each of the next chapters, chapters 5 and 6, explores one of these docking points. Shore et al. (2004, p. 350) suggest that «models of healthy employment relationships» are the understudied equivalent to the study of breach and violation. In this sense, the next two chapters investigate the psychological

contract in a comprehensive way, from under- to overfulfillment, and from low to high fulfillment (see figure 4.1).

To connect the psychological contract to other constructs, I take remarkable similarities to other concepts into account. Thompson and Bunderson (2003) introduced the notion of «theoretical cousins» (p. 577), namely Graham and Organ's (1993) social contract types, Kelman's (1958) classic processes of attitude change and Wrzesniewski et al.'s (1997) work orientations. Going beyond these works, I draw parallels to Greenberg's (1980) theory of indebtedness (see also Coyle-Shapiro & Parzefall, 2008).

In chapter 5, I will postulate that the three content dimensions of the psychological contract correspond to the three dimensions of organizational commitment as described by N. J. Allen and Meyer (1996). The link will be established by means of Kelman's (1958) influence types. Greenberg's (1980) theory of indebtedness, referring to three kinds of reciprocities, and Graham and Organ's (1993) organization types further buttress my claim.

Wrzesniewski et al.'s (1997) three *work orientations* are subject to chapter 6. I merge these orientations with three conceptions of military work, proposed by Moskos (1977a), leading to 4 types of orientations. Wilensky (1964) further corroborates this set; the three professional attitudes he found partly overlap both with Wrzesniewski et al.'s (1997) orientations and Moskos' (1977a) conceptions.

Beyond these empirical pieces in particular, and beyond the scope of the dissertation in general, the concluding chapter 7 suggests further relationships such as to the three kinds of *organizational identity* (Brickson, 2007), to the three forms of *job embeddedness* (Mitchell et al., 2001), and to the triad of *human goods* provided in the *Nichomachean Ethics* (Aristotle, 350 B.C./2011) (see González & Guillén, 2008). Table 4.24 bears an overview of this astonishing number of presumed theoretical parallelisms, of which only some are revealed in the present dissertation.

4.5.3 Limitations and the future

Several limitations must be acknowledged with regard to the present chapter. First, the unexpected 2nd-order model needs further investigation. The number of transactional items was too small, which resulted in two consequences. On the one hand, it remains unclear whether the transactional-monetary and transactional-content sub-factors are generalizable. Additional transactional-monetary items could refer, for example, to fringe benefits such as issued cars for military professionals, to privileges such as bootblacks for senior active reservists, or to special allowances like first-class train tickets for civilian employees. In terms of content, omitted variables from the psychological contract inventory (Rousseau, 2000) such as «Accept increasingly challenging performance standards» or «Respond positively to dynamic performance requirements» could be added. On the other hand, a broader measurement may be helpful to further investigate cross-sample differences. Presumably subsample-specific psychological contracts open a new way of reasoning about the construct. Instead of examining whether P_{TRAIN} is part of the transactional or the relational contract, scholars could explore instead which of them applies for different samples. Particularly appealing is the suggestion that seemingly transactional-monetary related inducements such as P_{PAY} or P_{HOURS} may be part of the relational contract in the case of volunteers, for

Table 4.24: Suggested theoretical cousins of the psychological contract.

Concept	Chapter	Dimension			Source
		blue	red	green	
Exchanged currency	4	economic	socio-emotional	ideological	Thompson and Bunderson (2003)
Contract dimension	4	transactional	relational	ideational	Thompson and Bunderson (2003)
Organization type	4/5	transactional	social exchange	covenantal	Graham and Organ (1993)
Influence types	5	compliance	identification	internalization	Kelman (1958)
Commitment mechanisms	5	continuance	cohesion	control	Kanter (1968)
Organizational commitment	5	continuance	affective	normative	N. J. Allen and Meyer (1990)
Reciprocity	5	utilitarian	attraction-based	normative	Greenberg (1980)
Work orientation	6	Job	Career	Calling	Wrzesniewski et al. (1997)
Organizational identity	7	individualistic	relational	collectivistic	(Brickson, 2007)
Job embeddedness	7	sacrifice	links	fit	Mitchell et al. (2001)
Aristotle's human goods	7	useful	pleasant	moral	González and Guillén (2008)

example in non-profit organizations. Organizational benefits such as allowances may, in such cases, be rather a sign of relational appreciation than of transactional liabilities.

Second, findings may be enhanced by refining items in the ideational contract. The scale refers to Bingham's (2005) initial work, but the need for freeing error covariances between P_{INVOL} and P_{CULTU} to obtain acceptable fit in the CFA suggests further development. Such a post-hoc remedy might be appropriate to obtain reasonable model fit (Cole, Ciesla, & Steiger, 2007), but should generally be avoided and in any case is only reasonable for indicators sharing components (p. 209). Although this rule was strictly respected in the modeling (see figures 4.4 and 4.5), it would be better to model them from the outset. Especially, the ideational component could be modeled more broadly to reduce such variances. Given the high Cronbach $\alpha = .900$, such an enhancement seems possible.[46]

Third, all three outcome variables had their downsides. Work satisfaction was obtained by a 1-item measure, which may be appropriate given that it is a clearly shaped construct (Wanous et al., 1997), but a broader measure would buttress findings. Turnover intention was measured by 3 items, stemming from Mowday, Koberg, and McArthur (1984) and validated in the Swiss context (Grote & Staffelbach,

46 One may interject that this is due to the translation (see chapter 4.3.1) where «cause, mission or set of enduring principles» were translated by «cause» only. However, Vantilborgh et al. (2014) retained the original formulations and obtained and even higher $\alpha = .93$ (p. 222) for P.

2009). However, recent studies suggest a more differentiated view of withdrawal behavior (e. g., Woo & Allen, 2014; Semmer, Elfering, Baillod, Berset, & Beehr, 2014), which is possibly relevant in a setting where people are at least partly constrained, be it due to low employability, or legal obligation to stay. Finally, work effort following De Cooman et al. (2009) did not meet expectations as a self-report measure related to performance. The heavy skew, with a sample mean of 5.224 on a 6-item scale, causes not only the construct to suffer from bad discriminant validity (cf. chapter 3.6.3), but implies low variance. Therefore, the finding of significant relations was impeded. Moreover, it would be useful to investigate the relationship of the psychological contract to hard measures, but due to confidentiality concerns, this is not feasible in the present study.

Fourth, the present study is of cross-sectional design. Strictly speaking, outcomes such as work satisfaction, turnover intention, and work effort may also cause the psychological contract to alter. The underlying causal assumption builds on sound theoretical reasoning, but this does not supersede empirical evidence. Beyond causality concerns, it would be interesting to see when, how and how much the psychological contract develops. In the early 1990s, Robinson, Kraatz, and Rousseau (1994) already found that mutual obligations may change «strikingly during their initial years» (p. 147), and Thomas and Anderson (1998) compared 880 British recruits with 1 157 experienced soldiers in a longitudinal study and found that already within 8 weeks after day one, their relational contract increased significantly, aligning with insider norms. What would this change look like in terms of the ideational contract? How does this development interact between the layers – with shifts, crowding-outs or spillovers? How does the psychological contract change with increasing age or when someone changes from one subsample to another? What is the impact of generational change? The present study may serve as a starting point for further investigation with regard to such questions, which are relevant to scholars and practitioners, both in- and outside of the Swiss Armed Forces. In addition, such a study could further corroborate the mental model interpretation; it follows from the discussion in chapter 4.2.6 that psychological contracts are the harder to change the longer an individual stays with the organization.

Fifth, the interaction between different layers needs more thorough study. On the one hand, each of the layers has a direct impact on outcomes relevant to the individual and the organization. This could imply that all contract layers have to be fulfilled to achieve a desirable outcome, corresponding to Von Liebig's (1865) law of the minimum. In his agricultural tract, he argued that «every field contains …a minimum of one or several other nutrients. The crops are proportional to this minimum, it governs and determines the amount and duration of the production.» (p. 223). In this view, underfulfillment in one layer may not be compensated for by overfulfillment in another layer. However, an alternative interpretation follows from the fact that different contract fulfillments correlate strongly. This is rather an argument for a law of substitution (e. g., Hens & Pamini, 2004, p. 95). Thereby, overfulfillment in one layer might substitute for underfulfillment in another. This question goes beyond the scope of this chapter. However, chapter 5.5.2 presents a potential answer, at least with regard to organizational commitment as an outcome variable.

Sixth, understanding the psychological contract as a mental model remains a suggestion – or, in the present case, a definition. This interpretation has proven to be powerful in developing nature, contents, and structure of the psychological contract. However, this is not a verification of the mental model view. As Petersitzke (2009) suggested, specific studies are needed to decide whether psychological contracts indeed follow the rules of mental models in terms of creating and development, but also with regard to manipulation or flaws of such models. Such studies may finally decide whether the mental model applies, further supporting Rousseau's understanding of the psychological contract.

In summary, the present investigation prepares the ground for further research of the psychological contract as a multifaceted construct with outcomes relevant to both the organization and its members.

4.5.4 Practical implications and conclusion

First, I suggest 6 practical implications of a generalizable kind. In addition, I provide 2 implications focussed on the Swiss Armed Forces. However, these idiosyncratic propositions may as well be transferred to other organizations. There is a practitioner's gap in how the psychological contract construct «can be used on a daily basis or strategically to manage people» (N. Conway & Briner, 2005, p. 17). Thus, I deliberately list these implications in a simplified manner, at the risk that not every fragment is empirically indurated. Nevertheless, I have conscientiously derived them from the findings presented in this study – with the exception of the second implication, inherited from N. Conway and Briner (2005).

There is no new contract, because there is not the *contract*. I suppose the prevalent interpretation in the 1990s, stating that «a new contract has evolved» (e. g., Cavanaugh & Noe, 1999; Arnold, 1996; Guest, 1998a), was detrimental to the understanding of the psychological contract as an individual-level construct. An organization, no matter whether it is a firm or an army, is incapable of changing a generation's psychological contract. This is not to say that generational differences would not occur; however I argue for an alternative understanding. As the present study shows, essential differences exist between different groups within the Swiss Armed Forces – despite the fact that they come from the same small country, are all senior members, and sometimes even work in the same offices. Reflecting the psychological contract of each individual may be overwhelming for an organization; yet adapting HR practices to the requirements and needs of different peer groups may be worth the effort.

Imposing changes, communicating promises, and more. Because «adapting HR practices» seems rather vague, I add the suggestions N. Conway and Briner (2005) came up with to manage the psychological contract. According to N. Conway and Briner, one way of managing the psychological contract is to manage its contents (p. 163). Imposing change is the first option. For instance, if job security is not grantable anymore, this content should be removed, or replaced by an alternative, such as outplacement measures. Communicating promises is yet another option, where inducements exist, but are insufficiently known. Further opportunities exist, such as negotiation, which is essentially a change in the contents established in agreement, or practices to detect breaches as early as possible, for instance by means of a survey such as this one.

People do it for money. And emotions. And ideals. The present study suggests individuals see their relationship to the organization as an exchange of economic, socio-emotional, and ideological currencies. Despite some differences between groups, none of them categorically misses one of the three contract layers. Employees experience ideological inducements, even if they do not represent the core business. Socio-emotional exchanges are not restricted to long-term employees or professionals. Volunteers, too, perceive economic promises. Thus, both HR and line managers may acknowledge the three-layered psychological contract to better understand the multifaceted nature of the mental model individuals develop towards their organization.

Promises don't satisfy. Fulfillment does. Relational fulfillment has the most substantial impact, explaining more than a quarter (25.2%) of variance of overall work satisfaction. Thus, socio-emotional exchanges are the most central ones to satisfying employees. Yet transactional and ideational fulfillment is important, too. It sounds like a commonplace, but evidence supports the notion: promises do not affect satisfaction. The difference lies in what people receive.

Fulfillment keeps people on board, and high promises involve high risks. The present study found that all three layers of psychological contract fulfillment reduce the turnover intention of employees substantially. What's more, a cultural metaphor from American Football may hold true with respect to psychological contracts and turnover intentions: it is a game where high risks come with (potentially) high rewards (Gannon, 2011, p. 3). The moderating effect suggests that in the case of overfulfillment, higher transactional promises act as retention measures. In contrast, where the transactional contract is underfulfilled, higher transactional promises are even counterproductive.

Individuals contribute for promises, not for fulfillment. Of course, this does not imply that organizations aiming to maximize the effort of their employees should merely boost their promises without caring about their fulfillment; sooner or later, the detrimental effects described in the previous two points will undo the positive effect of high promises. Nevertheless, it is enlightening that individuals reciprocate on promises rather than on fulfillment. This may be interpreted, at least for the present sample, as a mature attitude, where the relationship is based on good faith, rather than on tit-for-tat.

The next two implications refer explicitly to senior active reservists and civilian employees. An adequate description of the situation among military professionals would go well beyond the scope of the present dissertation and will be submitted confidentially to the Swiss Armed Forces.

Senior active reservists have transactional contracts, too. Recent studies have repeatedly argued that the transactional contract doesn't apply to volunteers (Vantilborgh et al., 2014; Bingham et al., 2014). Indeed, findings reveal that the effect of this contract layer on work effort and work satisfaction is smaller than for the other subsamples. Nevertheless, they perceive transactional promises, and they perceive them – on average – as underfulfilled. Detailed analysis, not provided here, demonstrates that this applies to both the transactional-monetary and the transactional-content sub-factor. As a consequence, Swiss Armed Forces should pay attention to situations causing transactional underfulfillment for senior active reservists. For instance, part-time workers see themselves as discriminated against by the fact that the federal «fund for loss of earned income» (Federal Social Insurance Office, 2015) only compensates them

for pre-service earnings, although their service is accomplished full-time. Furthermore, senior active reservists sharing child care with their partner have to pay for additional child care during service time at their own expense. Adjusting policies to contemporary work and family models would help to fulfill transactional contracts for senior active reservists, resulting in higher satisfaction and probably also a greater intention to stay within the armed forces.

Civilian employees are not less ideational. The assumption in the tradition of Military Sociology, that civilian employees are less bound by ideological inducements (Moskos, 1977a), does not hold true, at least not in the Swiss Armed Forces. Given that culture is yet another way to manage psychological contracts in organizations (N. Conway & Briner, 2005), the Swiss Armed Forces should actively reflect such false, but popular assumptions. Apparent gaps between different occupational groups (compare boxes 2.1 and 2.2) are more likely to be bridged when individuals are more aware of commonalities. The Swiss Armed Forces should therefore portray civilian employees as equally dedicated to their overarching goals, and consider them as an active part of the organization's culture. It is worth noting that the U. S. Army faced a similar need a decade ago, leading to a unification of the Army civilian service and the formation of an *Army Civilian Corps*, similar to the Officer Corps and the NCO Corps (Wait, 2012). The way this was done, for instance by formalizing an *Army Civilian Corps Creed*, is unlikely to be transferable to the Swiss background; however, instituting such a cultural strengthening would probably serve to unify civilian and military employees in the Swiss Armed Forces.

In conclusion, the findings of the present study substantiate the importance of the psychological contract to both the individual and the organization. The present chapter contributes to the knowledge about the outcomes of psychological contract promises and fulfillment. Despite the challenge of how to effectively manage the psychological contract, these findings are likely to be illustrative for practitioners. Furthermore, the validated construct of the psychological contract in three layers paves the way for the propositions of the next two chapters, chapters 5 and 6.

Chapter 5

Three Components of Organizational Commitment

The military needs committed service members and families. We hear this all the time, but what does it mean to be a committed service member or spouse? Committed to what? And why do we want committed service members and spouses? . . .
We want committed soldiers and families
because we expect them to perform their work better,
to be more likely to stay in the military, and to be good citizens of their organizations.

Organizational Commitment in the Military: An Overview (Gade, 2003)

5.1 Introduction

Commitment is one of the most studied constructs in Organizational Behavior, and the best known among practitioners (H. J. Klein, Molloy, & Cooper, 2009; Albrecht, 2006). The Organizational Commitment Questionnaire (Mowday, Steers, & Porter, 1979) contributed to the wide acceptance of *organizational commitment* as a construct important to both employees and organizations (H. J. Klein, Molloy, & Cooper, 2009).

N. J. Allen and Meyer (1990) introduced the three-component model (TCM), unifying three different components of commitment from the early literature. Continuance commitment, previously called economic commitment (H. S. Becker, 1960, p. 39), reflects the *need to*-component (N. J. Allen & Meyer, 1990). Affective commitment represents the *want to*-component in the tradition of Buchanan (1974; Steers, 1977; Mowday et al., 1979). Normative commitment, which N. J. Allen and Meyer (1990) also called the *ought to*-component, deals with obligations (R. M. Marsh & Mannari, 1977) or normative pressures (Wiener, 1982). Nowadays, N. J. Allen and Meyer's (1990) TCM dominates the literature concerning organizational commitment (Jaros, 2009), although frequently, the normative component is omitted in practical applications (e. g., Federal Office of Personnel, 2011; Gade, 2003).

Boxes 5.1 to 5.3 provide quotations from survey participants reflecting one of the three components of the TCM. These quotes illustrate how different components deviate in desirability. Affective and, to a lesser degree, normative commitment bear results most beneficial for the organization *and* the employee. In contrast, continuance commitment implies hardly any beneficial, or even detrimental outcomes (e. g., N. J. Allen & Meyer, 1996; Meyer, Stanley, Herscovitch, & Topolnytsky, 2002). In addition, components are not exclusive, which is relevant both to the practitioner and the researcher (Meyer & Herscovitch, 2001; Wasti, 2005).

Organizational commitment has a long research tradition in military settings. As early as 1979, Hom et al. used organizational commitment to predict reenlistment decisions of National Guard members, the reserve component of the U. S. Armed Forces. However, in the 2003 special edition of *Military Psychology* on organizational commitment, Gade criticized military researchers for omitting Organizational Behavior research standards when measuring organizational commitment. The special edition called for more thorough investigation, and it gave support to the TCM in a military context (e. g., O'Shea, Goodwin, Driskell, Salas, & Ardison, 2009; Meyer, Kam, Goldenberg, & Bremner, 2013). However, no study so far has comparatively investigated organizational commitment for military, civilian, and reservist samples.

Box 5.1: Survey participants reflecting continuance organizational commitment

«Warum sieht man keine Zukunft ausserhalb der Armee. Z. B. weil man nur eine Arbeitsbestätigung und kein Fähigkeitszeugnis bekommt. (…) Nach ein paar Jahren kann man den Bund gar nicht mehr verlassen.» [no. 1183]

«(ich würde) sofort eine andere Stelle suchen, nur bin ich als Pilot ein Fachspezialist praktisch ohne Marktwert.» [no. 2563]

Box 5.2: Survey participants reflecting affective organizational commitment

«Ein gut funktionierendes Team und Wertschätzung der Arbeit ist für mich viel höher gewichtet als z.B. den Job zu wechseln wegen etwas mehr Lohn.» [no. 2843]

«Ich bin überglücklich für den Arbeitgeber Schweizer Armee zu arbeiten!» [no. 623]

«Auf Stufe Einheit und Bataillon funktioniert die Arbeit grösstenteils sehr gut und sie macht auch Spass!» [no. 1166]

In addition to the particular interests of Armed Forces and Society, such a study may contribute to solving the micro-generalizability issue of the TCM. According to Jaros (2007), «micro generalizability refers to the validity of the model within sub-populations in the broader Western culture» (p. 16). The TCM was developed for full-time employees, but organizations increasingly rely on part-time employees, contractors, and volunteers. Senior active reservists of the Swiss Armed Forces may be considered as volunteers (see chapter 2.1.2.3). Additionally, including military professionals and civilian employees provides a unique opportunity to test the generalizability of the TCM.

Military samples may also increase knowledge regarding the well-known (e. g., N. J. Allen & Meyer, 1996; Meyer et al., 2002) issue of discriminant validity between affective and normative commitment (Gade, 2003, p. 165):

> However, some of us, including me, had abandoned the concept of NC prematurely because its measures tend to correlate so highly with AC measures. Because of its potential utility for predicting and explaining military performance and readiness, we need to try a little harder to measure this construct in our military populations. The military, of all organizations, should be the ideal place to explore this concept. If NC cannot be demonstrated in the military services, I doubt it can be demonstrated anywhere.

Again, a multifaceted Swiss Armed Forces sample not only provides such a military context, but also allows for comparison between military and civilian populations, thereby making transfers to the civilian society easier than with a purely military sample.

The dissertation at hand is about revealing relationships between the psychological contract and other Organizational Behavior constructs. In the last 50 years, there have been quite a few attempts to relate organizational commitment to psychological contracts. Schein (1965) related both concepts to formulate managerial strategies. Macneil (1985) argued that the psychological contract may be an antecedent of organizational commitment. Rousseau (1990, p. 397), introducing transactional and relational contracts, spoke explicitly of transactional and relational commitments. Since then, numerous

Box 5.3: Survey participants reflecting normative organizational commitment

«Was sollen die ganzen Fragen zum Austritt aus der Armee? Ich denke nicht im Traum daran auszutreten, daher habe ich die Fragen auch nicht beantwortet. Ausserdem: Offizier ist man sein Leben lang. Wieso sollte ich meine Offizierskarriere beenden? (…)» [no. 1103]

«Ich bin, wie auch mein Vater Oberst (…) und damals mein Grossvater Br (…) sehr stolz im EMD resp. im VBS militärisch wie auch beruflich arbeiten zu dürfen. Es ist seit Generationen ein Teil in unser Familie.» [no. 2097]

studies have related elements of both concepts (e. g., Millward & Hopkins, 1998; Raja, Johns, & Ntalianis, 2004; Meyer & Parfyonova, 2010; Bal, De Lange, Zacher, & Van der Heijden, 2013), but so far no study has attempted to compare both constructs systematically in their respective three-dimensional representation. Not just empirical work, but «additional theorizing is needed in terms of how psychological contracts are related to [affective, normative]» (Wayne et al., 2009, p. 273) and continuance (p. 269) commitment. Accordingly, I set up

> **Research Question 5.1:** How do the three components of organizational commitment relate to the three layers of the psychological contract, in theory and in practice?

In addition to the expansion of commitment to different sub-samples or multiple components,[47] commitment was adapted to multiple *foci* since the 1980s (Meyer, Jackson, & Maltin, 2008, p. 39). There are numerous other foci, from customers to top management (T. E. Becker, 2009); however, I include only *organization* and *vocation* as foci in the present study. The organization is at the heart of the study, and vocational groups deserve ongoing attention in Armed Forces and Society research (Leonhard & Biehl, 2012; Huntington, 1957; Janowitz, 1961; Moskos, 1977a; Wachtler, 1986). In the literature, this focus is usually referred to as *occupational* or *professional* commitment. However, I adhere to the notion of *vocational commitment* instead, to prevent jingle fallacy (Kelley, 1927) with *occupational* or *professional* work orientations introduced in chapter 6. Referring to Meyer et al. (1993), I investigate vocational commitment, which comprises the same three components as *organizational* commitment does.

Wayne et al. (2009)'s claim for additional theorizing referred to organizational commitment, but I expand this claim to include the relationship between vocational commitment and psychological contracts. At first glance, the gap between the two is even wider. However, in the case of military professionals, for whom leaving the organization implies a change in vocation (Wachtler, 1986), vocation and organization merge. For such vocations, Swiss federal administration coined the notion of the «Monopolberuf» (Meier, 1996; BPV, 2016, art. 30a, 3), but the corresponding low employability has recently been relativized (Szvircsev Tresch & Merkulova, 2012). Comparing the organizational commitment-psychological contract relationship to the vocational commitment-psychological contract relationship for different vocational groups contributes to this discussion, which is not limited to the Swiss Armed Forces, but is characteristic for military professionals in general (Leonhard & Biehl, 2012). Thus the second question is more specific to the sample, but is as well generalizable to Armed Forces and Society research beyond Switzerland:

> **Research Question 5.2:**
> How do the relationships between organizational commitment and the psychological contract differ from the relationships between vocational commitment and psychological contract among military professionals and civilian employees?

47 Also *kinds* (Kanter, 1968) and, more recently, *forms* (e. g., Wasti & Önder, 2009) or *bases* (e. g., Jaros, 2009); herein, the wording is kept according to the three-*component*-model.

In answering these research questions, chapter 5 contributes to the literature in six ways:

First, I provide a threefold theoretical base for relating psychological contract and organizational commitment (Wayne et al., 2009). The main line of argument refers to Kelman's (1958) influence types. I further strengthen the argument by referring to the theory of indebtedness (Greenberg, 1980), and to Graham and Organ's (1993) organizational types as a specification of social exchange theory (Blau, 1964).

Second, I perform empirical tests of organizational commitment and vocational commitment regarding the subsamples of the Swiss Armed Forces. In this way, I corroborate micro-generalizability of these constructs for different sub-populations (Jaros, 2007), namely for military professionals and civilian employees in both constructs, and additionally for senior active reservists in the case of organizational commitment. In the meantime, I answer Gade's (2003) call to «bring[…] military organizational commitment research into the mainstream» (p. 164).

Third, I test the theoretically derived relations between psychological contract and organizational commitment in three subsamples. To understand the pattern between the transactional, relational, and ideational layers of the psychological contract and the continuance, affective, and normative component of organizational commitment, I suggest a hierarchical interpretation of the layers and components. This interpretation opens perspectives for both practitioners and researchers.

Fourth, I contribute to the debate about discriminant validity of OC_{affe} and OC_{norm} (Gade, 2003). I replicate the previous findings (Meyer et al., 2002) of high correlations between the affective an the normative component, but confirm construct validity (Hair et al., 2010). Despite high correlations in all subsamples, I find that senior active reservists show considerably higher normative commitment than employees, but similar levels of affective commitment, corroborating the conceptual difference between the two components.

Fifth, I relate vocational commitment to the psychological contract for both military professionals and civilian employees. The differences found between the two add a differentiated view of the military profession *sui generis* (Apelt, 2006; Leonhard & Biehl, 2012; Downes, 1985), but also of their civilian colleagues (P. Klein, 2006).

Sixth, by comparing vocational commitment/psychological contract relation to the organizational commitment/psychological contract relation both for military professionals and civilian employees, I provide a new perspective on the *monopolberuf* debate, introducing the notion of *cognitive monopsony*. Concretely, I argue that only military professionals encounter monopsonistic labor conditions in the canonical, that is economic sense. However, both military professionals and civilian employees may perceive attitudinal states that are best described as affective or normative monopsony.

The rest of the chapter is structured as follows. Chapter 5.2 lays the theoretical foundation, from the single components to the TCM and its relationships to the psychological contract construct, and translates the theoretical statements into testable hypotheses. Chapter 5.3 provides specific measures and models to prepare the empirical research. Chapter 5.4 presents the results, from descriptive findings to hypothesis tests. Chapter 5.5 completes the chapter 5 on organizational commitment with a a summary and discussion of the results in general, and the relationship between organizational commitment and

psychological contracts in particular, addressing limitations and future research opportunities, and suggesting practical implications.

5.2 The Commitment Construct and Its Relations to the Psychological Contract

This chapter starts with a presentation of the three commitment components in chapters 5.2.1 to 5.2.3, spanning from early research in the 1960s (H. S. Becker, 1960; Etzioni, 1961; Kanter, 1968) to recent findings and reviews (e. g., Meyer, 2014; Jaros, 2009). Chapter 5.2.4 unites these single components into the TCM (N. J. Allen & Meyer, 1990), allowing for a definition of organizational commitment and vocational commitment. Chapter 5.2.5 constructs the theoretical link between the TCM and the psychological contract in three layers (Thompson & Bunderson, 2003). Chapter 5.2.6 translates the assumptions of the previous chapters into testable hypotheses.

5.2.1 Continuance commitment

In the words of N. J. Allen and Meyer (1990), continuance commitment (CC) corresponds to the *need to*-component. It can be traced back to H. S. Becker's (1960) side-bet theory (Jaros, 2007; N. J. Allen & Meyer, 1990). According to H. S. Becker, the «economic man» is constrained by side-bets to act consistently (p. 33). Consistency, in the present case, means staying with the organization or with the vocation. Side-bets are constraints implicating that the consequences of inconsistency, that is of leaving the organization or the vocation, do not present a feasible option.

CC consists of two subscales, «high sacrifice (CC:HiSac)» and «low alternatives (CC:lowAlt)» (McGee & Ford, 1987; Meyer, Allen, & Gellatly, 1990; Meyer et al., 2002). Of these, CC:HiSac is more closely aligned to side-bet theory (McGee & Ford, 1987; Powell & Meyer, 2004). According to Meyer et al.'s (2002) meta-analysis, CC:HiSac correlates positively and CC:lowAlt negatively with AC (see next subsection). However, correlation between the two subscales is much stronger ($\hat{\rho} = .86$), confirming that the CC:HiSac- and CC:lowAlt-subscales «reflect a common underlying theme, namely, cost associated with leaving an organization» (Meyer et al., 1990, p. 716).

Continuance commitment is sometimes referred to as *calculative* commitment, but the two concepts differ slightly (Jaros, 2007). The notion of calculative commitment was introduced by Etzioni (1961) when relating commitment to different types of organizational control. In his framework, he links *calculative involvement* to remunerative power.

In contrast, *alienative involvement* is based on coercive power, such as in prisons or military training camps (Etzioni, 1961). Box 5.4 cites a study participant, exemplifying that alienative commitment which even occurs in the present study of Swiss Armed Forces' seniors. In a certain sense, coercion is a rigid lack of (feasible) alternatives. Thus I subsume alienative commitment within CC.[48]

48 This is not in contradiction to Penley and Gould (1988), who argued that Etzioni's (1961) alienative and moral commitment are both «*affective* forms of organizational attachment» (p. 43). Penley and Gould (1988) associate alienative commitment with

Box 5.4: Survey participants reflecting alienative organizational commitment

«Ich würde sofort aus dem Militär austreten, wenn diese Möglichkeit bestehen würde.» [no. 116]

With respect to outcomes, CC is known for the absence of positive, and sometimes even the presence of negative consequences on organizational variables, besides turnover intentions (e. g., Meyer et al., 2002). But even this last area is highly double-edged, since the reduced turnover intentions of an employee who is not committed otherwise correspond to the detached (Woo & Allen, 2014) or even reluctant (Hom et al., 2012) stayer and may therefore not be favorable at all. Thus, with regard to the discussion of results (chapter 5.5), I generally regard CC as an undesirable attitude.

The actual term *continuance* commitment originates with Kanter (1968, p. 500). In her social organization study on utopian communities, she refers to H. S. Becker's (1960) view of commitment. To her goes the honor of creating the first theoretically derived multi-component view of organizational commitment. She describes three components – or in her words, *kinds* – of commitment, based on Kelman's (1958) influence types. For Kanter (1968), continuance commitment corresponds to the compliance type, «acting in terms of rewards and punishments, profits and costs» (p. 501), with sacrifice and investment as negative and positive processes of continuance commitment.[49] In addition, Kanter (1968) introduces *cohesion* commitment and *moral* commitment, which I identify with AC and NC, respectively, which I integrate in the next two subsections.

5.2.2 Affective commitment

In contrast to CC, N. J. Allen and Meyer (1990) describe affective commitment (AC) as the *want-to*-component and trace it back to Kanter (1968), Buchanan (1974), and Porter and Steers (1973; Porter et al., 1974). Even earlier, Etzioni's (1961) *moral* commitment contains affective elements (Penley & Gould, 1988, but see footnote 48 on this), but also comprises normative characteristics.

Less ambiguously, Kanter (1968) derives *cohesion* commitment as «an attachment to social relationships» (p. 501) from Kelman's (1958) identification type. In line with TCM terminology, Kanter refers to the «fund of affectivity and emotion to the group» (p. 507) in the description of cohesion commitment.

Buchanan (1974) differentiates between *organizational* and *work* commitment. In doing so, Buchanan expands commitment on different *foci*, foreshadowing the distinction between organizational and vocational commitment commitment I will make in chapter 5.2.4. Buchanan's perspective corresponds to affective commitment (N. J. Allen & Meyer, 1990, p. 2).

causes such as fear of financial loss or lack of perceived alternative jobs (p. 48), which clearly belongs to the continuance and not to the affective component in the TCM terminology. Rather, Penley and Gould (1988) understands *affective* in contrast to *behavioral* commitment (H. J. Klein, Becker, & Meyer, 2009; Jaros, 2009). Thus, Penley and Gould's (1988) *affective* commitment does not correspond to the homonymous component of N. J. Allen and Meyer's (1990) model.

49 Kanter (1968) understood commitment as «the process through which individual interests become attached to the carrying out of socially organized patterns of behavior» (p. 500); see my definition 5.1 in chapter 5.2.4.

With the introduction of the Organizational Commitment Questionnaire (OCQ), Mowday et al. (1979; Porter et al., 1974) initiated the expansion of the organizational commitment construct in Organizational Behavior research (Meyer et al., 2008, p. 36). Affective commitment is «perhaps best represented» by this line of work.

Numerous studies and meta-studies (e. g., N. J. Allen & Meyer, 1996; Meyer et al., 2002) have shown that AC is beneficial to the organization. In addition, AC correlates positively with physical and mental health and negatively with burnout, stress and tension, and other detrimental personal variables (Meyer, 2009, p. 41). AC may even be regarded as a further development of work satisfaction (Judge et al., 2001). Thus, in the discussion of the results (chapter 5.5), I consider AC *a priori* to be desirable.

5.2.3 Normative commitment

N. J. Allen and Meyer (1990) describe normative commitment (NC) as the *ought-to*-component; it is the least well developed of the three streams anticipating the TCM (p. 3). Etzioni's (1961) «moral involvement» could be interpreted as an early example of such a commitment, but N. J. Allen and Meyer (1990) do not cite Etzioni at all. Instead, they refer to Wiener (1982; Wiener and Vardi, 1980). Based on a normative view, Wiener and Vardi (1980) argued for a «commitment independent of direct, ‹selfish› interests» (p. 84) and found that their view «requires a separation of normative processes from calculative ones in the prediction of work behaviors» (p. 94). Notably, they contributed to a multi-foci view, suggesting that *job* and *organizational* commitment have different impacts on work effort, performance effectiveness and attachment (p. 92).

Surprisingly, N. J. Allen and Meyer (1990) do not integrate Kanter's (1968) *control* commitment as an analog to NC, although they recognized the obvious parallels in terms of CC and AC. Referring to Kelman's (1958) internalization type, Kanter (1968) defines *control* commitment as «commitment to *norms*, the values and inner convictions which morally obligate the individual» (p. 501, emphasis in the original). In light of this quote, I identify Kanter's (1968) control commitment with NC, which is crucial to the argument in chapter 5.2.5.

NC usually implies favorable outcomes as well, although to a lesser degree than AC (e. g., Meyer et al., 2002). An interesting subtlety has been revealed recently by Vandenberghe, Mignonac, and Manville (2015). They found in two studies with three independent samples ($n = 366, 100, 187$) that NC is more strongly associated with negative outcomes such as emotional exhaustion and distress in the presence of high CC:lowAlt, and less positively related to performance. With regard to the discussion (chapter 5.5), I read NC as a rather desirable, but ambivalent outcome.

5.2.4 Multi-component and multi-foci models of commitment

To recapitulate, Kanter (1968) anticipated the TCM more than 20 years before N. J. Allen and Meyer (1990). In my view, the TCM reflects a deeper triad in human nature. Thus, the TCM was not invented by either of these authors, but rather discovered. To corroborate this claim, I briefly summarize multi-

component[50] approaches that have emerged in the past 60 years, which reflect over and over again the same sets of components, or parts of such a set.

Both Etzioni (1961) and Kanter (1968) were early proponents of a multi-component approach (see also Meyer et al., 2008, pp. 38–39). As mentioned previously, Etzioni (1961) separated what in the framework of the TCM has been denoted later as CC and NC. In contrast, Kanter's (1968) distinguishes between continuance, cohesion, and control commitment, relying on Kelman's (1958) influence types of compliance, identification, and internalization. Since N. J. Allen and Meyer (1990) have traced back CC and AC to Kanter's (1968) continuance and cohesion commitment, respectively, and given that NC corresponds to control commitment (if one considers Kanter's (1968) and N. J. Allen and Meyer's (1990) definitions) I conclude that CC, AC, and NC correspond to Kelman's (1958) influence types, namely compliance, identification, and internalization. This correspondence is crucial to the argument following later in chapter 5.2.5, when relating organizational commitment to the psychological contract.

In a similar way to Kanter, O'Reilly and Chatman (1986) derived, in their wording, three *bases* of commitment reflecting Kelman's (1958) influence types. They provided measures for the three bases, but there were several issues in finding empirical support for their model; especially, identification and internalization lacked discriminant validity (Meyer et al., 2008, p. 39). Given that in terms of the TCM, AC corresponds to identification, and NC is based on internalization (see chapters 5.2.2 and 5.2.3), this lack is unsurprising: AC and NC are known for their high correlation from the beginning of the TCM (N. J. Allen & Meyer, 1990, 1996), which was later confirmed by meta-analytical reviews. For example, Meyer et al. (2002) reported $\hat{\rho} = .63$ for $k = 54$ studies with $n = 18\,508$ participants.

Despite their conceptual closeness and their comparable validity issues, it was not O'Reilly and Chatman's (1986) model, but N. J. Allen and Meyer's (1990) TCM which found broader acceptance (H. J. Klein, Molloy, & Cooper, 2009; Albrecht, 2006; Meyer et al., 2008) and finally «relative dominance» (Meyer, 2014, p.35) or even dominance (Jaros, 2009, p. 355) in the literature.

It is important to realize that the TCM explicitly allows the co-existence of several *components*. Actually, this is why N. J. Allen and Meyer (1990) introduced this terminology rather than *types* (p. 4). Using the same logic, Kanter (1968) stated that the commitment components she proposed may be contradictory, independent, or mutually reinforcing, depending on the context (p. 500). Meyer and Herscovitch (2001) advanced the notion of component interdependency, establishing the *profile approach*. In this approach, profiles such as NC/AC-dominant vs. NC/CC-dominant are essential to individual and organizational outcomes. Although it is not universally accepted (Vandenberg & Stanley, 2009, p. 384), there is growing evidence for and constant refinement of the approach (Meyer, 2014).

Aside from this development, there is also a conceptual critique of the fundaments of the TCM. Solinger, Van Olffen, and Roe (2008) argued that whereas organizational commitment in general is an attitude towards the organization, CC and NC are rather attitudes towards staying or leaving, that is

50 The literature is inconsistent with regard to terminology. Kanter (1968) wrote about *kinds* of commitment. More often, the components are also called *forms* (e. g., Wasti & Önder, 2009) or *bases* (e. g., Jaros, 2009). Meyer, Becker, and Vandenberghe (2004) even distinguish between foci, forms, and bases of commitment (p. 994). In this dissertation, for the sake of clarity, the wording is done according to the three-*component*-model.

Box 5.5: Survey participants reflecting commitment foci

«Leider wird in solchen Umfragen immer nur die Rolle der Armee oder der Organisationseinheit befragt. Die Armeeführung wird stets ausgelassen. Man kann sehr wohl stolz auf die Armee als Institution, aber fürchterlich enttäuscht von der Armeeführung sein!» [no. 2310]

«Viele der gestellten Fragen sind stark abhängig durch den direkten Vorgesetzten. Somit kann nicht immer von der Armee gesprochen werden.» [no. 1979]

related behaviors. Solinger et al. proposed reconceptualizing organizational commitment as an attitude towards a target (p. 79), basing on Ajzen's (1991) theory of planned behavior and Eagly and Chaiken's (1993) reasoned action model. I do not intend to reconceptualize the idea of organizational commitment, given that my overarching goal is to compare established concepts. Similarly, the proposition of commitment profiles (Meyer & Herscovitch, 2001) goes beyond the scope of the dissertation. Nevertheless, I reconsider both Solinger et al.'s (2008) and Meyer and Herscovitch's (2001) propositions in the outlook (chapter 5.5.3).

I now dispose of all elements, to define organizational commitment in the sense of the present study. I adhere closely to Kanter's (1968) definition, emphasizing the importance of her contribution to my argument, but also acknowledging the closeness of her construct to N. J. Allen and Meyer's (1990) TCM. However, I refer to commitment as a set of attitudes rather than a process (Kanter, 1968, p. 500), in accordance with the current state of commitment research (Solinger et al., 2008, p. 72). In that research, this *set* refers to the multi-component character of commitment. Thus I set up the following

> **Definition 5.1:** *Organizational* commitment is the individual's set of attitudes based on the carrying out of *socially organized* patterns of behavior which are seen to fulfill the interests of the individual.

Beyond the understanding of organizational commitment as a multiple-component construct, the expansion to multiple foci has gained particular attention (Meyer et al., 2008, p. 39). There is a variety of commitment foci, such as customers, peers, top management, supervisors, or teams (for a summary, see T. E. Becker, 2009), and often, they are represented in the TCM.[51] In addition to the *organization* as the core focus of commitment research, I include the *vocation*. Research in vocational groups has a long standing tradition in Armed Forces and Society (Collmer, 2010; Huntington, 1957; Janowitz, 1961; Moskos, 1977a; Wachtler, 1986), and the treatment of different vocational groups. In particular, the contrast between military professionals and civilian employees, is of practical relevance to western armed forces (Goldenberg et al., 2016; Leonhard & Biehl, 2012). Inclusion of further foci, however, would go beyond the scope of the dissertation. Nevertheless, study participants suggest *post hoc* that such an expansion would likely be fruitful for further research; see box 5.5.

51 For a quantitative comparison of three-component models for 5 foci, see (Stinglhamber, Bentein, & Vandenberghe, 2002)

The unconventional wording of *vocational* commitment calls for an explanation. Usually, such a commitment is called *professional* or *occupational* commitment (Vandenberghe, 2009, p. 102). However, both labels have connotations relevant to chapter 6. Both *occupation* and *profession* denote different military «conceptions» (Moskos, 1977a), comparable to work orientations (Wrzesniewski et al., 1997). Further, *profession* is a concept central both to Armed Forces and Society (Collmer, 2010) and sociology (Pfadenhauer & Sander, 2010). Consequently, to prevent a potential jingle fallacy (Kelley, 1927), I refer to the less usual notion of *vocational commitment* as a more neutral designation. This, however, is *not* a claim that the terminology in general should change, but only a situational adaptation to reduce notional overlap within this dissertation as a whole.

The TCM has been directly extended to vocational commitment (Meyer et al., 1993). Thus I can translate definition 5.1 directly into the following

> **Definition 5.2:** *Vocational* commitment is the individual's set of attitudes based on the carrying out of *vocational* patterns of behavior, which are seen to fulfill the interests of the individual.

5.2.5 Relationship between commitments and psychological contract

The central proposition of the present chapter 5 is about how organizational commitment relates to the psychological contract. Referring to Kanter (1968), I argued in chapter 5.2.4 that CC, AC, and NC (N. J. Allen & Meyer, 1990) correspond to Kelman's (1958) influence types, namely compliance, identification, and internalization. Kelman's (1958) triad has thus been related to psychological contracts. Arguing for the inclusion of the ideational layer in the psychological contract, Thompson and Bunderson (2003) contend that the three-layered psychological contract «mirrors Kelman's (1958) classic typology of attitude change» (p. 577), pointing out that transactional contracting corresponds to compliance, that relational contracts are consistent with the concept of identification, but that ideational contracts are needed to capture internalization (ibid.). Taking all of this together, Kelman's (1958) three influence types correspond both to the three components of organizational commitment *and* to the layers of the psychological contract, these correspondences lead to the following

> **Proposition 5.1:** The continuance, affective, and normative components of organizational commitment correspond to the transactional, relational, and ideational layers of the psychological contract.

This bold claim demands quite a bit of support. To begin with, I present an overview of attempts to link both concepts from the literature, culminating in Meyer and Parfyonova's (2010) recent proposition. Meyer and Parfyonova (2010) suggest how transactional, relational, and ideational contracts relate to different commitment profiles involving NC. Drawing on the theory of indebtedness (Greenberg, 1980), I expand their argument to CC and AC, corroborating proposition 5.1. To add yet another argument, I refer to social exchange theory (Blau, 1964) and related organization types (Graham & Organ, 1993). To

close the chapter 5.2.5, I examine the circumstances under which proposition 5.1 may be transferred to the relationship between vocational commitment and psychological contracts, resulting in proposition 5.2.

There is in fact an overlap between the two streams of literature and «abundant research» (Solinger, Hofmans, Bal, & Jansen, 2016, NP) relating psychological contract breaches to a decline in commitment, but a lack of theory behind (Wayne et al., 2009). Early, at the dawn of both concepts, Schein (1965) related the psychological contract and organizational commitment (p. 65, emphasis in the original):

> In both the rational-economic and social theories, the psychological contract involves an exchange of extrinsic rewards (economic and social ones) for performance. In self-actualization theory, the contract involves the exchange of opportunities to obtain intrinsic rewards (satisfaction from accomplishment and the use of one's capacities) for high-quality performance and creativity. This, by definition, creates a *moral* rather than a calculative involvement, and thus releases a greater potential for commitment to organizational goals …

Translated into recent terminologies, Schein's *calculative* involvement could be understood as continuance commitment, and *moral* involvement refers to normative commitment. This becomes apparent when acknowledging that Schein associated *moral* involvement with normative power and *calculative* involvement with utilitarian power (p. 46), in the sense of Etzioni (1961). It is striking to see how, by means of associating different psychological contracts with different types of involvement, Schein (1965) provided a forerunner to the parallels to what was later considered to be components of organizational commitment.

Another premature comparison was Macneil (1985), who argued that the psychological contract may be an antecedent of organizational commitment, and in her seminal paper, Rousseau (1990), who spoke explicitly of transactional and relational commitments (p. 397). In later publications, she saw commitment as an implication of the psychological contract (Rousseau & Wade-Benzoni, 1994), but did not investigate the relationship conceptually.

Millward and Hopkins (1998) were among the first authors to link Rousseau's (1990) conceptualization of the psychological contract with the organizational commitment concept. With respect to the latter, they built on the classic approach of Mowday et al. (1979) and found evidence that OCQ scores were positively related to relational orientation as a subscale of the psychological contract, but negatively related to the transactional related subscale (Millward & Hopkins, 1998, p. 1543). In their theoretical derivation, Millward and Hopkins (1998) acknowledged the seeming parallels between the two concepts (p. 1533-1534):

> It might be argued, then, that the psychological contract model is merely a model of organizational commitment by another name: Transactional orientation is uncannily similar to the calculative type of commitment proposed by Etzioni (1961), and the relational orientation is uncannily similar to Etzioni's idea of an affective/attitudinal type of commitment.

However, they did not follow this train of thoughts to the end. Presumably, this was not only due to the fact that they relied on the OCQ instead of a multi-component model of organizational commitment such as the TCM, but also that they understood the psychological contract as «a continuum ranging from transactional to relational» (Millward & Hopkins, 1998, p. 1531). In the interim, most findings have suggested that transactional and relational contracts rather form independent dimensions (e. g.,

Coyle-Shapiro & Kessler, 2000; Hui et al., 2004). In chapter 4, I added similar evidence for the case of ideational contracts.

Bunderson (2001) found evidence among $n = 283$ clinicians of a U.S. non-profit health care organization that breaches of *professional role obligations* have a stronger negative impact on affective organizational commitment than breaches of *administrative role obligations*. Similarly, Castaing (2006) established *public service expectations* as a more relational and *administrative expectations* as a more transactional contract (p. 88) in a sample of $n = 754$ French civil servants. He argued that relational breach should be more strongly related to AC and NC, but the transactional breach should relate more strongly to CC. However, results were mostly not as hypothesized.[52]

Raja et al. (2004) found in a sample of $n = 197$ (mostly male) Pakistani private and public employees that relational contracts relate positively and transactional contracts negatively to AC. Other empirical attempts were made (e. g., Lester, Turnley, Bloodgood, & Bolino, 2002; Johnson & O'Leary-Kelly, 2003; Sturges, Conway, Guest, & Liefooghe, 2005; Bal et al., 2013; Zhou, Plaisent, Zheng, & Bernard, 2014), but common to all of these approaches was that either organizational commitment was not operationalized according to the TCM, or that the psychological contract was not – or only partly – operationalized in three layers (Thompson & Bunderson, 2003; Rousseau, 1990). Only a few authors have referred to both constructs as explicitly multi-dimensional. One notable exception is presented in the next paragraph. Subsequently, I further develop their proposition to corroborate proposition 5.1.

Following the profile approach of the TCM (Meyer & Herscovitch, 2001), Gellatly, Meyer, and Luchak (2006) found that NC was positively related to intention to stay and citizenship behavior when combined with AC, but only weak positively with intention to stay and negatively with citizenship behavior when combined with CC. Their interpretation was that NC may be experienced as a *moral imperative* in the presence of AC, but as an *indebted obligation* in the presence of strong CC (p. 342). Meyer and Parfyonova (2010) elaborated this interpretation with regard to NC and thereby argued that different psychological contracts may relate to different profiles. Concretely, the authors proposed that employees with transactional contracts were more likely to develop CC/NC-dominant profiles, whereas relational contracts foster development of an AC/NC-dominant profile (p. 289). Most relevant with regard to my conceptualization, Meyer and Parfyonova (2010) also included ideational contracts and proposed that similarly to the relational case, such employees were were more likely to have an AC/NC-dominant than a CC/NC-dominant profile.

As mentioned earlier, Meyer and Parfyonova's (2010) argument refers to the profile approach. In this study, I rely on the fundamental TCM by N. J. Allen and Meyer (1990). In addition, Meyer and Parfyonova (2010) focus on normative commitment, the issue they intend to address explicitly (p. 283). Beyond their suggestion, there are other than AC/NC- and CC/NC-dominant profiles, and there is also a need for scrutiny at the component level and not only at the profile level. At the profile level, AC/NC involves a *moral imperative*, and CC/NC involves *indebted obligations* (Meyer & Parfyonova,

52 Note that understanding psychological contracts as sets of expectations is not consistent with the literature (N. Conway & Briner, 2005; Rousseau & McLean Parks, 1993; Robinson & Rousseau, 1994); see chapter 4.2.2 for further details.

2010; Gellatly et al., 2006). According to the theory of indebtedness (Greenberg, 1980), the reduction of indebted obligations in the frame of an ongoing relationship is an act of reciprocity. On the other hand, reciprocation happens at least partly due to «some general *moral norm*» (Gouldner, 1960, p. 174, emphasis in the original). Thus, the NC element of both profiles refers to normative reciprocity. This argument now allows for a theoretical expansion.

The theory of indebtedness (Greenberg, 1980) distinguishes between three motivational bases of reciprocity. First, utilitarian reciprocity characterizes the economic nature of man (Blau, 1964), where the motivation is to receive future rewards (Greenberg, 1980, p. 14), and likewise avoidance of future costs. Second, attraction-based reciprocity serves to express positive regards for the donor. Further motivations lie inherently in the «interaction with an attractive other» and the «recipient's concern for the donor's well-being» (p. 15).[53] Finally, normative reciprocity is «motivated by the need to reduce indebtedness …since it derives from internal pressure to conform to the norm of reciprocity» (p. 15) following Gouldner (1960).

To summarize, Meyer and Parfyonova's (2010) proposition is more likely to be a part of the story rather than its conclusion, and Greenberg (1980) offers an expansion to all three components of organizational commitment. Just as NC refers to normative reciprocity, one may ask what the adequate relationship in the case of CC and AC might be. The coloring introduced above anticipated the claim I make: Utilitarian reciprocity is an experience of CC, and attraction-based reciprocity is an experience of AC. Just as CC refers to the economic man, so too does utilitarian reciprocity; it is a cognition based on costs and rewards. In contrast, AC builds on affectivity and emotion, which are motivational bases for attraction-based reciprocity. Greenberg's argument that there are three motivational bases for reciprocity thus expands Meyer and Parfyonova's (2010) reasoning on all components in TCM, albeit not in the profile approach of Meyer and Herscovitch (2001).

We are now a mere step away from linking organizational commitment to the psychological contract by reciprocity. Although psychological contract literature has seldom referred to Greenberg (1980) – one exception is Schurer Lambert et al. (2003), and a more explicit note can be found in (Coyle-Shapiro & Parzefall, 2008, p. 27) – reciprocity lies at the heart of the concept (see chapter 4.2.4). In the words of Thompson and Bunderson (2003), where the exchange of different currencies corresponds to the different layers of psychological contract, utilitarian reciprocity includes the exchange of economic currency, which is subject to the transactional contract (see chapter 4.2.4). In contrast, attraction-based reciprocity includes the exchange of socio-emotional currency, the topic of relational contracts.

One may object that according to Rousseau (1989), it is exactly the *lack* of reciprocity that characterizes commitment and distinguishes it from the psychological contract (p. 125):

> Commitment does not address issues of reciprocity or obligation, and at the same time involves an acceptance and internalization of the organization's values that need not be part of a psychological contract.

53 At first glance, it seems unlikely that an employee shows concern for his employer's well-being. However, in light of possible anthropomorphism (e. g., Coyle-Shapiro & Kessler, 2000, p. 905), such reasoning becomes more understandable.

However, in her 1989 article, Rousseau referred to Mowday, Porter, and Steers's (1982) preliminary understanding of commitment, preceding the more comprehensive TCM. In later years, scholars have acknowledged the reciprocal character of organizational commitment. For example, Settoon, Bennett, and Liden (1996) argue that organizational commitment is associated with reciprocity (p. 220) and Fuller, Barnett, Hester, and Relyea (2003) use this successfully to relate organizational commitment and perceived organizational support. Similarly, Van Knippenberg and Sleebos (2006) found evidence that AC is exchange-based. To conclude, Greenberg's (1980) three bases of reciprocity may effectively relate the three components of the more recent organizational commitment model (N. J. Allen & Meyer, 1990) to the three layers of psychological contracts (Thompson & Bunderson, 2003), thereby corroborating proposition 5.1.

The second argument owes a great deal to another observation by Thompson and Bunderson (2003), when they refer to Graham and Organ's (1993) different social contracts. Graham and Organ (1993) distinguish three types of organizations, namely transactional, social exchange and covenantal organizations. Thompson and Bunderson stated that transactional and relational contracts reflect employees in transactional and social exchange organization, but the ideational contract is needed to describe the contract type in covenantal organizations (p. 578). Yet Graham and Organ (1993) pay special attention to commitment, and in their conclusion, they write (p. 498):

> In transactional agreements, commitment is to the explicit and enforceable terms of the agreement itself. Social exchange agreements involve commitment to an enduring relationship of diffuse mutual obligations which, over the long run, is fair to all parties. Commitment in covenantal agreements involves not only a long-term relationship among the partners, but also internalization and pursuit of transcendent values.

The quotation refers to a slightly different concept of commitment than N. J. Allen and Meyer (1990) offered; it is obviously more a behavioral[54] and less an attitudinal understanding. Nevertheless, the same pattern reappears. Graham and Organ (1993, p. 484) understand transactional agreements in the sense of Blau (1964), that is, an economic interpretation of human behavior, just as in the case of continuance commitment. In contrast, social exchange «gives rise to ‹sentiments› such as feelings of loyalty and devotion» (p. 489), which are likely to be expressions of affective commitment. Finally, within a covenantal agreement, values are essential (p. 494), just as in normative commitment. Thus, *cum grano salis*, Graham and Organ's (1993) three contract types can be again used to relate psychological contract to organizational commitment.

In a nutshell, there is at least[55] a threefold underpinning for proposition 5.1. Whether one refers to Greenberg's (1980) forms of reciprocity, to Kelman's (1958) influence types or to Graham and Organ's (1993) contract types, there seems to be an underlying relationship between the three layers of psychological contracts (Thompson & Bunderson, 2003) and the three components of organizational commitment (N. J. Allen & Meyer, 1990). These parallels are summarized in table 5.1.

54 See (H. J. Klein, Becker, & Meyer, 2009, pp. 5–6) and (Jaros, 2009, pp. 347–351) for comparisons of behavioral-based and attitudinal theories of commitment.

55 Relating both constructs to Aristotelean Goods (see chapter 7.3.3) offers a potential fourth argument. González and Guillén (2008) have described such an analogy for organizational commitment, but for psychological contracts, this has not yet been suggested.

Table 5.1: Summary of the terminology and color code used to describe organizational commitment in relation to the psychological contract. An extended form, including similar constructs, can be found in table 4.24.

Concept	Dimension			Source
	blue	red	green	
Exchanged currency	economic	socio-emotional	ideological	Thompson and Bunderson (2003)
Contract dimension	transactional	relational	ideational	Thompson and Bunderson (2003)
Org./voc. commitment	continuance	affective	normative	N. J. Allen and Meyer (1990)
Reciprocity	utilitarian	attraction-based	normative	Greenberg (1980)
Influence type	compliance	identification	internalization	Kelman (1958)
Organization type	transactional	social exchange	covenantal	Graham and Organ (1993)

Finally, I proceed to vocational commitment. At first glance, there is no obvious reason why the same relationship should occur between an employee's psychological contract and his vocational commitment. Reciprocity (Greenberg, 1980) may occur between the employee and the employer, but it is unlikely to exist between the employee and his vocation. However, influence types (Kelman, 1958) apply to social groups; as Mueller and Lawler (1999) state, «‹the profession› [...] is clearly a meaningful reference group» (p. 328). Therefore, a vocation may represent a social group or even a social organization in the sense of Graham and Organ (1993). If – and only if – the vocation merges with the organization, the correspondence suggested in chapter 5.2.5 may occur with regard to vocational commitment:

> **Proposition 5.2:** The continuance, affective, and normative components of vocational commitment only correspond to the transactional, relational, and ideational layers of the psychological contract when the employee's vocation is not clearly separable from the organization.

5.2.6 Hypotheses

The hypothesis section is structured as follows. First, I establish hypotheses regarding the structure of organizational commitment and the suggested main relationships, that is, concerning the relationship between each of the three layers of psychological contract and the assumed to correspond component of organizational commitment. Second, I present hypotheses regarding the cross relations, that is how each of the layers affect the other two components. Third, I give hypotheses with respect to curvilinear relationships between the two concepts. Fourth, I provide hypotheses concerning vocational commitment, especially its relationship to organizational commitment and to the psychological contract.

In line with N. J. Allen and Meyer's (1990) three-component model TCM (see chapter 5.2.4) and definitions 5.1 to 5.2, I suggest

Hypothesis 5.1:

a. Continuance, affective, and normative commitments are separable components of organizational commitment.
b. Continuance, affective, and normative commitments are separable components of vocational commitment.

Organizational commitment applies to military professionals, civilian employees, and senior active reservists alike. In contrast, vocational commitment will only be investigated for employees, but not for senior active reservists. One could further hypothesize that continuance, affective, and normative commitments are pairwise separable with regard to organizational and vocational commitment, but the related reasoning is postponed to hypothesis 5.5.

The next triplet is the explicit version of proposition 5.1. In this version, I have to take into account that, conceptually, every layer of the psychological contract involves three separate constructs (Schurer Lambert et al., 2003): promised inducements, delivered inducements, and fulfillment. A violation of contracts leads to reduced commitments (Robinson, 1996; Robinson & Morrison, 2000), and violation corresponds to underfulfillment, in the conceptualization following Schurer Lambert et al. (2003). This is also in line with the conceptual logic that organizational commitment is an outcome of the psychological contract. Thus, I refer to *fulfillment* in the following

Hypothesis 5.2:

a. Transactional fulfillment is positively related to continuance organizational commitment.
b. Relational fulfillment is positively related to affective organizational commitment.
c. Ideational fulfillment is positively related to normative organizational commitment.

According to the arguments in chapter 5.2.5, these three hypothesized relations rely on three motivational bases of reciprocity (Greenberg, 1980). Because the various layers of psychological contract fulfillment overlap considerably,[56] and because «a given act of reciprocity is likely to be multidetermined» (Greenberg, 1980, p. 14), there is inevitably some covariance across layers and components. However, based on proposition 5.1, I expect these cross-dimensional effects to be considerably lower than the main effects. This yields

Hypothesis 5.3:

a. i) Transactional fulfillment is less strongly related to affective than to continuance organizational commitment.
   ii) Transactional fulfillment is less strongly related to normative than to continuance organizational commitment.

56 according to table 4.10, $r_{t-r} = .658$, $r_{r-i} = .458$, and $r_{i-t} = .555$

b. i) Relational fulfillment is less strongly related to normative than to affective organizational commitment.
   ii) Relational fulfillment is less strongly related to continuance than to affective organizational commitment.

c. i) Ideational fulfillment is less strongly related to continuance than to normative organizational commitment.
   ii) Ideational fulfillment is less strongly related to affective than to normative organizational commitment.

The sum of hypotheses 5.2 to 5.3 seems overwhelming, but introducing a new notation produces some relief. Let the HRM-Matrix[57] be the real 3×3-Matrix, mixing psychological contract fulfillment layers with organizational commitment commitment components. The element r_{jk} of HRM now corresponds to the covariance of the j^{th} fulfillment layer F_j and the k^{th} organizational commitment component OC_k within the framework of a structural equation model, thus controlling for the other fulfillment levels F_ℓ with $\ell \neq j$. With the notation $j = \text{t}, \text{r}, \text{i}$ and $k = \text{c}, \text{a}, \text{n}$ the matrix reads

$$HRM = \begin{pmatrix} r_{\text{tc}} & r_{\text{ta}} & r_{\text{tn}} \\ r_{\text{rc}} & r_{\text{ra}} & r_{\text{rn}} \\ r_{\text{ic}} & r_{\text{ia}} & r_{\text{in}} \end{pmatrix}, \tag{5.1}$$

which allows for a more transparent discussion of the results. The diagonal elements belong to hypothesis 5.2 and the off-diagonal elements belong to hypothesis 5.3. If the main effects were to fully capture the relationship between psychological contract layers and organizational commitment components, and all cross effects were to vanish, the HRM-matrix would equal the identity matrix I_3. Any deviation from the identity matrix corresponds to some mixing, when psychological contract layers impact organizational commitment components not directly related according to proposition 5.1. If for illustrative purposes, every element is substituted for with the enumeration of the corresponding hypothesis from above, the HRM-matrix reads

$$HRM = \begin{pmatrix} r_{\text{tc}} & r_{\text{ta}} & r_{\text{tn}} \\ r_{\text{rc}} & r_{\text{ra}} & r_{\text{rn}} \\ r_{\text{ic}} & r_{\text{ia}} & r_{\text{in}} \end{pmatrix} = \begin{pmatrix} \text{5.2.a} & \text{5.3.a.i} & \text{5.3.a.ii} \\ \text{5.3.b.ii} & \text{5.2.b} & \text{5.3.b.i} \\ \text{5.3.c.i} & \text{5.3.c.i} & \text{5.2.c} \end{pmatrix}.$$

Now, the hypotheses become more clearly arranged. Hypothesis 5.2 states the diagonal elements to be significantly greater than 0, that is r_{tc}, r_{ra}, $r_{\text{in}} \overset{\text{sig.}}{>} 0$, respectively. Hypothesis 5.3.a.i then suggests $r_{\text{ta}} \overset{\text{sig.}}{<} r_{\text{tc}}$, that is, the off-diagonal element is significantly smaller than the respective diagonal element within the same row; and similarly for the rest of hypothesis 5.3. In a nutshell, all hypotheses 5.2 to 5.3 are supported when every diagonal element of the HRM-matrix is significantly greater than 0, and all off-diagonal elements are significantly smaller than the diagonal elements of the same row.

57 Hofstetter-Rousseau-Meyer-Matrix

As has been argued previously, the stronger the correspondence between the two constructs in the sense of proposition 5.1 is, the closer the HRM-matrix comes to the identity matrix I_3. Based on this intuition, appendix B suggests a measure for the convergence of two constructs. Such a measure may be used to deliberately converge or diverge different constructs. In further research, this may allow for a tool to overcome the discriminant validity issues associated with affective and normative commitment.

So far, the main and crossing relationships have been considered in linear terms. However, some curvilinearity in the psychological contract-organizational commitment relationship is conceivable. The next three paragraphs derive such relationships layer by layer.[58]

An individual's transactional contract is underfulfilled ($F_{\text{trans}} < 0$) if the organization, in his perception, delivers him fewer economic inducements than he had perceived as promised. In such a setting, leaving involves a smaller risk, compared to the situation where his transactional contract is fulfilled ($F_{\text{trans}} < 0$). In contrast, overfulfillment of the transactional contract ($F_{\text{trans}} > 0$) corresponds to a setting where the individual is likely to sacrifice more when leaving. CC:HiSac is one of the sub-factors of CC. According to the law of diminishing returns (Shepherd, 1970/2015, p. 42), the economic weight of such a sacrifice attenuates. Thus, I expect CC to increase curvilinearly with increasing transactional fulfillment, at a decreasing rate.

An individual's relational contract is underfulfilled ($F_{\text{relat}} < 0$) if the organization, in his perception, delivers fewer socio-emotional inducements than he had perceived as promised. Analogous to the transactional-continuance situation, such a deficiency is likely to decrease AC. In contrast, overfulfillment in relational contracts $F_{\text{relat}} > 0$ corresponds to an excess of delivered inducements in socio-emotional currency, motivating the individual to perform attraction-based reciprocity. This, in turn, is expressed in higher AC. As for CC, the benefit of additional inducements may attenuate as soon as $F_{\text{relat}} = 0$ is trespassed.[59] Thus, I expect AC to increase curvilinearly with increasing relational fulfillment, at a decreasing rate.

In the case of ideational contracts, the underlying motive for normative reciprocity is indebtedness. According to experimental studies, indebtedness is primarily a function of the recipient's net benefits (Greenberg, 1980, p. 5), but in the case of the ideational contract, the individual is *not* the beneficiary of the (ideological) exchange. Instead, intangible principles profit from such ideational contracts (Thompson & Bunderson, 2003). This means that a saturation effect is less likely to occur, given the «unlimited liability» of covenantal relationships (Mileham, 2010). Likewise, growing underfulfillment $F_{\text{ideat}} < 0$ is expected to relieve indebtedness more and more, resulting in lower and lower NC. Thus, overfulfillment is expected to increase NC, but at a constant, rather than a decreasing rate.

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58 For the terminology with regard to psychological contracts, refer to definition 4.2 in chapter 4.2.6.

59 Both reasonings may be corroborated by prospect theory (Tversky & Kahneman, 1992). In the psychological contract construct, the level of promised inducements may serve as a point of reference to the value function from prospect theory (Schurer Lambert et al., 2003). The level of promised inducements, however, corresponds to $F = 0$, where delivery matches promises. Thus, a flattening of relationships for $F > 0$ can be expected. According to prospect theory, the same attenuating effect may be anticipated for the deficiency range $F < 0$, too, yielding an S-shaped relationship. However, this effect may be obscured by risk aversion, making the relationship even steeper, just below $F = 0$. In addition, individuals with extraordinarily low F values may likely select themselves out, leaving a sample in which the relationship may best be represented by a parabola.

The reasoning with regard to all three contracts is independent of the different subsamples. In addition, the cross-sectional nature of the study prevents causal inferences. Thus, despite the suggested causal direction in the argumentation, I refer to associations rather than causation. Consequently, for military professionals, civilian employees, and senior active reservists alike, I suggest

Hypothesis 5.4:

a. Transactional fulfillment is positively and curvilinearly associated with continuance organizational commitment, with diminishing increase for overfulfillment.
b. Relational fulfillment is positively and curvilinearly associated with affective organizational commitment, with diminishing increase for overfulfillment.
c. Ideational fulfillment is positively and linearly associated with normative organizational commitment.

To close, relationships between psychological contract layers and *vocational* commitment components are suggested. Given that the psychological contract is operationalized as the mental model of the perceived relationship between a member and the organization (definition 4.1), changing the focus of commitment from the organization to the vocation should substantially reduce the relationship between psychological contract and commitment. However, whereas the vocation and the organization are intertwined, the relationship between vocational commitment and the psychological contract may be as strong as the one between organizational commitment and the psychological contract.

For military professionals, a change of organization is a change of vocation (Leonhard & Biehl, 2012, p. 398). In terms of human capital theory, military professionals – and presumably also some civilian employees – possess an above-average share of firm-specific human capital and consequently, leaving the firm – in the present case, the Swiss Armed Forces – may be associated with substantial loss of income (G. S. Becker, 1962). Such a situation, where there is only one buyer for the military professionals' labor, corresponds to a monopsonistic situation (Manning, 2003). Monopsony is typically assumed in the armed forces (Asch & Heaton, 2008, see chapter 2.2.4). The degree to which vocational commitment is related to the psychological contract may thus correspond to the degree of monopsony of a given vocation. Based on this intuition, appendix B suggests a measure of monopsony.

For civilian employees, vocations are less monopsonistic, given that it is more likely that one finds an alternative employer providing a comparable workplace. Therefore, the relationships between vocational commitment and the psychological contract should be less strong than the ones between organizational commitment and the psychological contract. To summarize, I suggest

Hypothesis 5.5:

a. Vocational commitment of military professionals is as strongly related to psychological contract fulfillment as organizational commitment is.
b. Vocational commitment of civilian employees is less strongly related to psychological contract fulfillment than organizational commitment is.

5.3 Empirical Methods

Chapter 5.3.1 provides the measurements for the organizational commitment and the vocational commitment construct. Measurements for the psychological contract construct can be found in chapter 4.3.1. Additionally, I establish regression models for hypothesis 5.4 in chapter 5.3.2, relying on the regression models from chapter 4.3.2. To distinguish between organizational commitment and vocational commitment measures, I write OC_{cont} and VC_{cont} instead of CC, and similarly for AC and NC.

5.3.1 Measurements

Studies including the TCM have been conducted in more than 50 countries (Meyer et al., 2012). The German COBB[60] questionnaire (Felfe, Six, Schmook, & Knorz, 2006) includes items for organizational and vocational commitment based on N. J. Allen and Meyer (1990; Meyer et al., 1993). Translation of the organizational commitment items relied on Schmidt, Hollmann, and Sodenkamp (1998). Validation on behalf of a cross-sectorial sample of $n = 580$ permanent/temporary employees and self-employed persons yielded 14 items of organizational, and 16 items of vocational commitment.

Lengthy surveys may cause great inattention and provoke careless response behavior (Meade & Craig, 2012). Because the present study requires a substantial number of different scales (see appendix A), I reduce the number of items for both organizational commitment and vocational commitment to the recommended minimum of 3 to 4 items (MacCallum et al., 1999). Translations from German into French, and Italian were done according to chapter 3.4 and can be found in appendix A.2. Regarding OC_{cont}, all 4 items were kept. 1 item may be attributed to the CC:lowAlt subscale, namely OC_{FEWOP} «I feel that I have too few options to consider when leaving this organization» and 3 items belong to the CC:HiSac subscale, for example OC_{DRUPT} «Too much of my life would be disrupted if I decided I wanted to leave my organization now», which is preferable – CC:HiSac reflects the classical (e. g., H. S. Becker, 1960) CC (Jaros, 2009, p. 347). However, 4 items are not enough to discriminate between two potential subfactors (MacCallum et al., 1999). Felfe et al. (2006) report substantial[61] cross loadings for one item, namely OC_{PMUCH} with $\lambda_{\text{affe}} = .43$ and $\lambda_{\text{norm}} = .32$, compared to the main loading $\lambda_{\text{cont}} = .53$. Thus, similar findings can be expected in the present study.

Regarding OC_{affe}, the COBB scale proposes 5 items with high loadings between .72 and .80. One particular example is no. 11 «I feel a strong sense of ‹belonging› to my organization» (OC_{BLONG}). This item was reverse-coded in the original (N. J. Allen & Meyer, 1990, table 1 on p. 6), but I retain the positively worded version of the COBB. To reduce the scale, I omit item no. 12 «I think my moral concepts [Wertvorstellungen] match those of my organization», because of its proximity to normative concepts, and because the item was not in the original (N. J. Allen & Meyer, 1990; Meyer et al., 1993).

60 Commitment Organisation, Beruf und Beschäftigungsform [Commitment towards the organization, vocation, and form of employment (i. e. permanent employee, temporary employee, or self-employed)]

61 Tabachnick and Fidell (2013, p. 699) suggest a threshold of .32, explaining 10% in variance.

Regarding OC_{norm}, the COBB scale includes 5 items with loadings from .52 to .79. Of these, I omit item no. 8 «A lot of people that are important to me would not understand or would be disappointed, if I left this organization now» due to considerable cross-loading ($\lambda_{affe} = .40$) with only average main loading ($\lambda_{norm} = .60$), and because of its potential overlap with OC_{OBLIG} «I would not leave my organization right now because I have a sense of obligation to some[62] people in it».

In vocational continuance commitment (VC_{cont}), the COBB scale includes 5 items,[63] of which 3 items are disputable. First, item no. 10 «I have already invested too much in my present field of activity to consider reorientation» has a strong overlap in form and content with item no. 7 «I have already invested too much in this occupation to seek new employment elsewhere». Both items have acceptable loadings (.67 and .70, respectively) but also substantial cross loadings (no. 10 with $\lambda_{norm} = .42$, and no. 7 with $\lambda_{affe} = .39$). Given this ambiguity, I keep no. 7 as item VC_{IMUCH}, due to its closer alignment to *vocations*. Yet, the third problematic item is no. 13 «It would be disadvantageous for me to change my field of activity within my occupation». In my view, this does not as explicitly refer to vocational commitment as the other items do. Perhaps this is why the main loading of $\lambda_{cont} = .57$ is the lowest for all VC_{cont} items, and cross loading of $\lambda_{norm} = .37$. Thus, I delete this item, too. This leaves 3 remaining items, the minimum for sound factor analysis (MacCallum et al., 1999).

In vocational affective commitment (VC_{affe}), the COBB scale includes 7 items. I delete items no. 12, 15, and 3, with the lowest main loadings (.63, .78, and .79). An example for one of the 4 remaining items is VC_{HAPPY} «I would be happy to continue my employment in this occupation for the remainder of my working life».

In vocational normative commitment (VC_{norm}), the COBB scale includes only 4 items. Item no. 6 «A lot of people who are important to me would not understand, and would be disappointed in me were I to change my current field of activity or employment.» has considerable cross loadings ($\lambda_{cont} = .41$ and $\lambda_{affe} = .32$) and only average main loading (.52), but it clearly reflects the normative pressure associated with normative commitment (Wiener, 1982; N. J. Allen & Meyer, 1990). Thus, I keep all 4 items.

As explained in chapter 3.4, items were made context-specific, wherever possible, for example by changing «the organization» into «the Swiss Armed Forces». Further, some of the organizational commitment items had to be adapted for senior active reservists, as compared to military professionals and civilian employees.

With regard to the 12 organizational commitment items, 8 are identical for all subsamples, for example OC_{GUILT} which became «I would feel guilty if I left Swiss Armed Forces now». 2 items needed slight adaptions, such as OC_{PMUCH}; «…consider working elsewhere» was changed into «…consider leaving the Swiss Armed Forces». Another 2 items needed greater changes, namely OC_{FEWOP}, which was «I feel that I have too few options to consider leaving the Swiss Armed Forces right now», but given the legal constraint, *few options* does not get to the point in the case of senior active reservists.

62 This is a slight deviation from Meyer et al.'s (1993) «…obligation to *the* people in it» (p. 544, my emphasis)

63 Item 7 in the 2nd table in section 2 is classified as VC_{norm}, but both the content of the item, and factor loadings presented in table 2 of section 4, suggest that this classification is a mistake.

Therefore, the item was changed into «I have no chance to leave the Swiss Armed Forces right now» for them. Although this is close to *alienative* commitment (Etzioni, 1961), it can be interpreted as a form of continuance commitment, as has been argued in chapter 5.2. Similarly, OC_{BADIM} reads «It does not make a good impression to change your employer too often» for employees, but «It does not make a good impression to leave the Swiss Armed Forces prematurely» for senior active reservists.

In the survey, I deliberately split organizational commitment and vocational commitment measures to reduce the halo effect (Thorndike, 1920), given that some of the items, such as OC_{DRUPT} and VC_{DRUPT}, are very similar in their wording. Consequently, I place OC items at the beginning, right after the P, F items of the psychological contract, and I postpone VC items to the end of the survey. Organizational commitment items are provided in appendix A.2.1 and vocational commitment items in appendix A.2.2.

5.3.2 Modeling

The structural equation models (SEM) for testing hypotheses 5.1 to 5.3 and hypothesis 5.5 can be represented by matrix equations, but, acknowledging that such equation systems are less intuitive to read, corresponding diagrams are given instead in chapter 5.4. This is without a loss of information, because the matrix equations and diagrams of a given model are identical (Tabachnick & Fidell, 2013, p. 744). However, with regard to the assumed nonlinear relationships in hypothesis 5.4, regression equations may be helpful to understand the respective models.

To start with, equation (4.1) is repeated, wherein control terms $\sum_i \widetilde{b}_i C_i$ such as $EDUC$ are again omitted to simplify representation:

$$Z = \widetilde{b}_0 + \widetilde{b}_1 F + \widetilde{b}_2 P + \widetilde{b}_3 F^2 + \widetilde{b}_4 FP + \widetilde{b}_5 P^2 + e\,. \tag{4.1}$$

In this, F is the perceived relative fulfillment and P is the perceived promised inducement. Now the general outcome variable Z is replaced by the respective organizational commitment variable OC_k, that is, OC_{cont}, OC_{affe}, and OC_{norm}, respectively. Thus, equation (4.1) reads

$$OC_k = \widetilde{b}_0 + \widetilde{b}_1 F_j + \widetilde{b}_2 P_j + \widetilde{b}_3 F_j^2 + \widetilde{b}_4 F_j P_j + \widetilde{b}_5 P_j^2 + e \tag{5.2}$$

with $(k, j) = (\text{c}, \text{t}),\ (\text{a}, \text{r}),\ (\text{n}, \text{i})$. Equation (5.2) is used for the regression models. I will chose the control variables in chapter 5.4.2.

5.4 Results

The results chapter is divided into *descriptive findings*, followed by an investigation of the *relationship* between the main constructs, that is the psychological contract and organizational commitment, and the chapter closes with a *comparison* to vocational commitment.

The first subsection starts with the basic descriptives of the 12 OC_j and 11 VC_k items. Next, the factor structure of the organizational and vocational commitment is tested (hypothesis 5.1) by means of confirmatory factor analysis (CFA; Ullman, 2013), and then Pearson correlations between the OC and VC scales and the fulfillment F scales of the psychological contract are presented. In the second subsection, proposition 5.1 is tested in the form of hypotheses 5.2 to 5.3, revealing relationships between OC and F scales. The subsection is concluded by testing hypothesis 5.4, an investigation of curvilinearity among the relationship between F and OC. The third and last subsection of this chapter compares vocational commitment VC to OC in terms of hypothesis 5.5.

5.4.1 Descriptive findings of organizational commitment and vocational commitment

Descriptive statistics for the directly measured 12 OC and 11 VC items can be found in table 5.2.[64] There is no item cluster with conspicuously high numbers of missing variables, such as for P_{ideat} and F_{ideat}. All items share the same scale $[1, 6]$ and the spread of means is similar to the P and F items. The pattern in standardized moments is striking. All presumable OC_{cont} and VC_{cont} items have means below the scale midpoint (3.5) and higher standard deviations, are right skewed and platykurtic, whereas the presumable OC_{affe} and VC_{affe} items have higher means and lower standard deviations, are left skewed and leptokurtic. OC_{norm} and VC_{norm} fall in between the two.

Again,[65] histograms in figure 5.1 reveal sample-specific differences. There are items with large subsample-specific differences and others with more comparable distributions, independent of the component. Within OC_{cont}, for example, OC_{DISAD} has extremely different patterns, but not so OC_{PMUCH}. Also, the differences do not depend on whether the wording of items was identical (e. g., for OC_{DISAD}) or whether the wordings were adapted for senior active reservists (e. g., OC_{PMUCH} with minor, and OC_{HAPPY}, with major differences). In addition, different distribution patterns are prevalent for all components (e. g., OC_{NOTRI}). Thus I presume that different distributional patterns are not merely artifacts of inappropriate wording, but rather represent genuine differences between subsamples.

Scale transformation (Tabachnick & Fidell, 2013) is a suitable remedy for non-normal data. However, the impact of strong skewness and excess kurtosis diminishes for large samples (p. 114). Furthermore, standardized moments deviate among subsamples and therefore, transformations would induce detrimental non-normality in those subsamples with more normally distributed data. For instance, $\sqrt{7 - OC_{\text{DISAD}}}$ would reduce skewness (which is induced by the reservist subsample, see figure 5.1) for

64 For sample descriptives, refer to chapter 3.5.3. For descriptives regarding psychological contract, refer to chapter 4.4.1

65 See figure 4.3 for 3 P_{trans} histograms

Table 5.2: Basic statistics of the original and imputed 23 variables for organizational[a] and vocational[b] commitment. The full texts of variables are listed in appendix A.2.

Item	n	Missing	Mean		Std. Deviation		Skewness		Excess Kurtosis	
	Orig.	Orig.	Orig.	Imp.	Orig.	Imp.	Orig.	Imp.	Orig.	Imp.
OC_{DISAD}	2 724	2.8%	3.18	3.19	1.63	1.62	0.18	0.17	-1.14	-1.13
OC_{DRUPT}	2 742	2.2%	3.04	3.05	1.57	1.56	0.29	0.29	-1.04	-1.04
OC_{FEWOP}	2 695	3.9%	3.08	3.10	1.66	1.64	0.31	0.29	-1.13	-1.12
OC_{PMUCH}	2 728	2.7%	3.24	3.25	1.59	1.58	0.15	0.15	-1.13	-1.12
OC_{HAPPY}	2 743	2.1%	4.54	4.53	1.34	1.34	-0.86	-0.85	0.14	0.12
OC_{NOEMO}[c]	2 776	1.0%	4.98	4.97	1.19	1.19	-1.24	-1.23	0.98	0.96
OC_{PROUD}	2 784	0.7%	5.12	5.12	1.00	1.00	-1.30	-1.29	1.99	1.96
OC_{BLONG}	2 784	0.7%	4.81	4.80	1.14	1.14	-0.96	-0.96	0.68	0.68
OC_{NOTRI}	2 729	2.6%	3.43	3.43	1.62	1.61	-0.01	0.00	-1.18	-1.17
OC_{GUILT}	2 748	2.0%	3.13	3.13	1.62	1.61	0.22	0.21	-1.15	-1.15
OC_{BADIM}	2 696	3.8%	3.72	3.72	1.55	1.54	-0.29	-0.28	-0.99	-0.98
OC_{OBLIG}	2 742	2.2%	3.32	3.33	1.59	1.59	0.06	0.05	-1.14	-1.14
VC_{DRUPT}	1 867	1.8%	3.32	3.33	1.38	1.38	0.05	0.04	-0.82	-0.81
VC_{NOALT}	1 859	2.3%	2.79	2.80	1.42	1.42	0.46	0.46	-0.68	-0.69
VC_{IMUCH}	1 864	2.0%	3.33	3.34	1.44	1.44	0.09	0.08	-0.92	-0.92
VC_{HAPPY}	1 865	1.9%	4.73	4.73	1.11	1.10	-1.04	-1.03	1.24	1.22
VC_{PROUD}	1 882	1.1%	5.15	5.14	0.88	0.88	-1.23	-1.22	2.39	2.35
VC_{FUTUR}	1 884	0.9%	4.77	4.77	1.07	1.07	-1.06	-1.06	1.28	1.27
VC_{IDENT}	1 893	0.5%	5.10	5.09	0.87	0.87	-1.32	-1.32	3.14	3.10
VC_{DISAP}	1 847	2.9%	3.44	3.44	1.44	1.43	-0.11	-0.11	-0.96	-0.93
VC_{LOYAL}	1 860	2.2%	3.60	3.60	1.35	1.34	-0.22	-0.22	-0.68	-0.67
VC_{NOTRI}	1 851	2.7%	3.43	3.43	1.40	1.39	-0.08	-0.08	-0.95	-0.94
VC_{BADIM}	1 851	2.7%	2.86	2.87	1.31	1.31	0.40	0.38	-0.55	-0.56

[a] For the 12 *OC* items, $n = 2\,803$ (full sample), of which 2 457 are listwise complete.
[b] For 11 *VC* items, $n = 1\,902$ (only employees), of which 1 700 are listwise complete.
[c] Statistics refer to the reversed item.

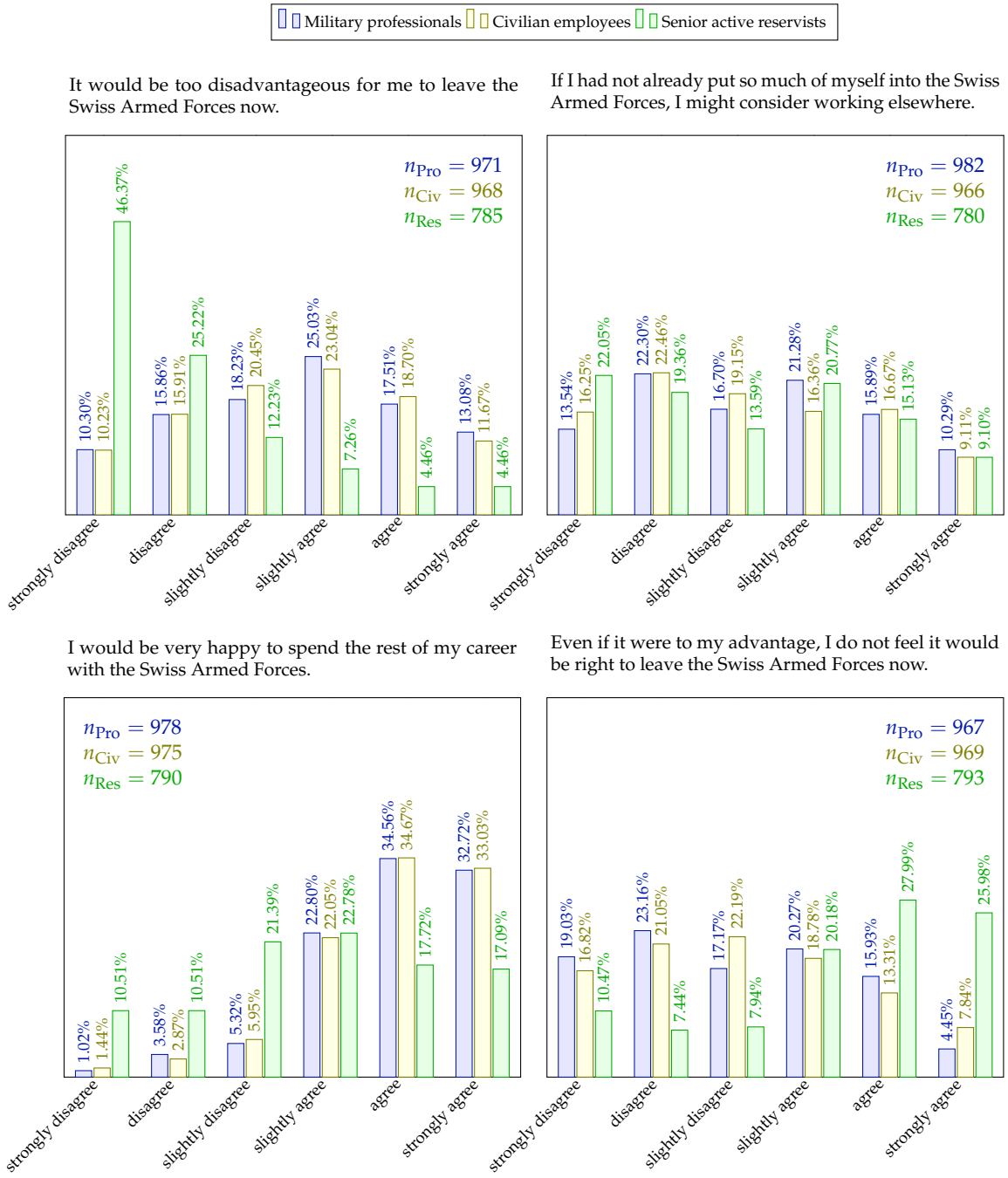

Figure 5.1: Histograms for items OC_{DISAD} and OC_{PMUCH} in the first, and OC_{HAPPY} and OC_{NOTRI} in the second row. Note that subsample sizes vary.

the global sample, but at the cost of right skewness for employee subsamples, given that these are fairly normal *before* transformation. Thus, I do not transform the data at all.

To summarize, premature analysis suggests that including subsample levels is appropriate, despite the hypotheses 5.1 to 5.4 not being subsample-specific. Hence, I perform structural equation modeling for the whole sample and subsamples simultaneously, that is, within one model, to respect subsample-specific features. Technically, this inflates the degrees of freedom by a factor of 4 in the case of 3 subsamples (for organizational commitment), and by a factor of 3 in the case of 2 subsamples (for vocational commitment).

Splitting *OC* items and *VC* to the beginning and the end of the survey caused some attrition. As indicated in footnotes a and b of table 5.2, $n = 2\,803$ for *OC* and $n = 1\,902$ for *VC* items. Taking into account that an additional $n_3 = 795$ senior active reservists reached the point where *VC* is placed in the survey (see chapter 3.5.4), this corresponds to a relative attrition of 3.8% in n, or a decline in the overall response rate of 1.1%, which is acceptable.

Next, I perform imputation according to chapter 3.7. Among the 12 *OC* items, 346 out of $n = 2\,803$ or 12.34% of all data sets had at least one missing value. However, given that the most frequent missing patterns only involved single missing items, only 2.215% of values were missing in total. Among the 11 *VC* items, the overall rate of missing values was even lower, just 2.009%.

To respect the the principle of using all data are whenever possible (Newman, 2009, p. 11), I performed a first imputation step on the bigger $n = 2\,803$ sample, and use it only when *OC* items are involved. I included $CATEGORY$, AGE, $GENDER$, and $LANGUAGE$ as predictors, and the *OC* items as both predicting and to-be-imputed variables at once. *OC* values were constrained for the scale range $[1, 6]$. In addition, I performed the same procedure to the *VC* items, but in the reduced data set with $n = 1\,902$ participants.

For both *OC* and *VC* items, means and standard deviations for imputed data barely deviate from the original data (table 5.2), corresponding to the expectation of data missing completely at random (MCAR; Allison, 2001). This, however, does not exclude that some data are missing not at random (MNAR), because this is impossible to exclude (Newman, 2009, p. 10). However, given the low percentage of missing data, this is unlikely to be the case.

Based on the imputed data set of $n = 2\,803$ cases, I first test hypothesis 5.1.a. Therefore, I apply confirmatory factor analysis (CFA), a special case of structural equation modeling, the usual estimation technique being maximum likelihood (Ullman, 2013, p. 731). According to the descriptives, the normality assumption underlying ML is violated.[66] Asymptotic distribution-free(ADF; Chou, Bentler, & Satorra, 1991) is an alternative free of normality assumptions; however, ADF is suitable for large samples (Hu et al., 1992, p. 357), but for such large sample sizes, ML yields acceptable results, as well (ibid., p. 358).

66 For large samples, visual inspection of histograms is more suitable than using formal inference tests, because decreasing standard errors for skewness and kurtosis lead to rejection of the normality assumption even for minor deviations (Tabachnick & Fidell, 2013, p. 115).

Preliminary comparison of both ADF and ML on the present data set confirms this expectation. For the full data set of $n = 2\,803$, without any adjunct subsample analysis, ADF estimation for the 12 observed OC variables and 3 latent factors OC_{cont}, OC_{affe}, OC_{norm} yields $\chi^2 = 953.2$, $\chi^2/df = 18.7$, $SRMR = 0.0884$, $CFI = .756$, $TLI = .684$, $RMSEA = .079$, outperforming ML estimation in the traditional ($\chi^2 = 1217.5$, $\chi^2/df = 23.9$), but not in the more sophisticated model fit indices ($SRMR = 0.0767$, $CFI = .913$, $TLI = .887$, $RMSEA = .090$). The sensitivity to sample size is a widely known disadvantage of the traditional χ^2 fit index (Vandenberg, 2006) and the reason that alternative fit measures have been developed (Ullman, 2013, p. 770). Due to this preliminary comparison and in consideration of the sample size exceeding the threshold of 2 500 (Hu et al., 1992), I apply ML.

According to the subsample-specific descriptive findings, I extend the model to a simultaneous treatment of the whole data set and the three subsamples. This improves ML estimation considerably ($\chi^2 = 2156.648$, $\chi^2/df = 10.572$, $SRMR = 0.0767$, $CFI = .928$, $TLI = .907$, $RMSEA = .041$), although it does not yet satisfy canonical thresholds.[67]

Apart from the poor χ^2/df value, the incremental fit indices CFI, TLI are still below the recommended thresholds. Investigation of subsample-specific estimates reveals that the standardized regression weight for $OC_{\text{FEWOP}} \leftarrow OC_{\text{cont}}$ is suspiciously different for senior active reservists (.141) when compared to civilian employees (.637) and military professionals (.711). Apparently, having few outside options does not contribute to the continuance organizational commitment of reservists. Theory suggests it is acceptable to exclude the OC_{FEWOP} item. It is the only item in corresponding to the CC:lowAlt subfactor of CC (McGee & Ford, 1987), but CC:HiSac better reflects the genuine meaning of CC (Meyer et al., 2002).

Excluding OC_{FEWOP} improves model fit ($\chi^2 = 1613.113$, $\chi^2/df = 9.836$, $SRMR = 0.0741$, $CFI = .942$, $TLI = .922$, $RMSEA = .040$); yet thresholds are still not met and validity measures reveal that $AVE_{\text{norm}} = .473$ only. Thus, I omit the weakest loading item with $\lambda_{OC_{\text{BADIM}} \leftarrow OC_{\text{norm}}}$. This omission resolves the validity concern ($AVE_{\text{norm}} = .568$), but is detrimental to model fit ($\chi^2 = 1517.181$, $\chi^2/df = 11.853$, $SRMR = 0.0778$, $CFI = .942$, $TLI = .918$, $RMSEA = .044$).

In addition, high covariances between the error term e_5 of OC_{HAPPY} and other variables suggest that omitting this variable may further improve the model. This third mission yields a model free of validity concerns, but with slightly worse fit indices. However, a part from χ^2/df, only TLI is slightly below its .95-threshold ($\chi^2 = 807.374$, $\chi^2/df = 8.410$, $SRMR = 0.0650$, $CFI = .965$, $TLI = .948$, $RMSEA = .036$). The corresponding model is presented in figure 5.2 and the validity measures can be found in table 5.3. To compare, ADF would have ambivalently impacted fit indices ($\chi^2 = 642.169$, $\chi^2/df = 6.689$, $SRMR = 0.0644$, $CFI = .909$, $TLI = .863$, $RMSEA = .032$).

67 As a level of acceptance, values from $\chi^2/df \leq 2.0$ to ≤ 5.0 have been suggested by H. W. Marsh and Hocevar (1985). Among the measures of absolute fit, Hu and Bentler (1999) propose a standardized root mean square residual $SRMR < .08$ and a root mean square error approximation $RMSEA < .06$. Finally, comparative fit index $CFI > .95$ and Tucker Lewis Index $TLI > .95$ (Tucker & Lewis, 1973) are thresholds for good incremental fit (Hu & Bentler, 1999). However, recommendations vary quite a bit. For instance, SAGE's *Handbook of Industrial, Work and Organizational Psychology* suggests $CF > .90$, but $SRMR < .05$ (Spector, 2001, p. 22).

Table 5.3: Validity measures[a] according to Hair et al. (2010) for organizational commitment OC in the 3-factor model, with 3 items excluded.[b]

	CR	AVE	MSV	ASV	OC_{cont}	OC_{affe}	OC_{norm}
OC_{cont}	.788	.561	.055	.050	*.749*		
OC_{affe}	.863	.679	.250	.153	.235	*.824*	
OC_{norm}	.796	.568	.250	.147	.211	.500	*.754*

[a] Thresholds for convergent validity: Composite Reliability $CR > 0.707$, Average Variance Extracted $AVE = 0.5$.
Criteria for discriminant validity: $AVE > MSV$, ASV (Maximum Shared Variance, Average Shared Squared Variance), $\sqrt{AVE}$ (in *italics* on the diagonal of the triangular correlation matrix at the right side) greater than any correlation with another factor.
[b] OC_{FEWOP} and OC_{HAPPY} excluded due to validity concerns, OC_{BADIM} to increase model fit.

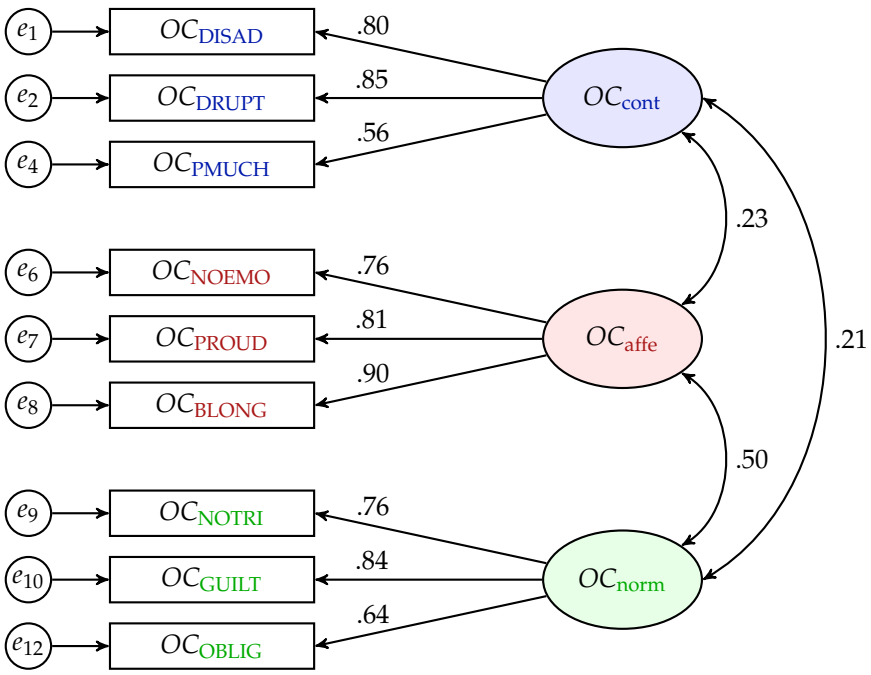

Figure 5.2: The 3-factor model of organizational commitment OC, with three variables excluded.

I conclude that continuance, affective, and normative commitments are separable components of organizational commitment and therefore, hypothesis 5.1.a is supported. However, there is a trade-off between model fit and discriminant validity. Given that construct validity is of particular concern in the intended comparison with other constructs (chapter 5.4.3), I prefer the more parsimonious model in figure 5.2 with only three items per component, which is free of validity concerns table 5.3.

Hypothesis 5.1.b suggests an identical substructure in the case of vocational commitment. A first model including all 11 variables, but no subsamples modeled, yields dissatisfactory model fit measures (table 5.4) and one validity concern, $AVE_{\text{norm}} = .466$. As a first remedy, subsamples are introduced. In contrast to the *OC* model, senior active reservists are excluded and thus, only two subsamples (military professionals and civilian employees) are taken into account. Doing so improves the model fits, but not the validity measures at the global sample level. Next, I reconsider VC_{norm} items.

Omitting VC_{DISAP}, the item with the lowest overall[68] loading, improves convergent validity above the threshold, $AVE_{\text{norm}} = .508$. In the original COBB scale, this item already showed considerable cross loadings (see chapter 5.3.1). Thus, the shortcoming is more probably measurement, than sample-specific.

Deleting VC_{DISAP} again worsens the model fit indices. Modification indices suggest freeing two within-factor covariances for error terms ($e_{VC_{\text{DRUPT}}} - e_{VC_{\text{NOALT}}}$, $e_{VC_{\text{PROUD}}} - e_{VC_{\text{IDENT}}}$). The practice of allowing error terms to covary is generally considered problematic, but suitable when the corresponding observables share a common latent factor (Landis et al., 2009, p. 209). This is the case for both variables. In addition, for the more strongly covarying pair, a theoretical basis for freeing the respective residuals exists (Cole et al., 2007). Extraversion as a personality trait (Barrick & Mount, 1991) fosters both authentic pride (Tracy & Robins, 2007) and non-diffuse identity styles (Clancy Dollinger, 1995). Thus, VC_{PROUD} and VC_{IDENT} may be related to extraversion, independent of the psychological contract fulfillment, presumably explaining the considerable covariance between the respective residuals.

Freeing the two covariances does indeed substantially improve fit indices. CFI, $SRMR$, and $RMSEA$ now indicate good model fit; only TLI is slightly below the suggested threshold of .95, and the traditional measure χ^2/df is still considerably above the suggested 5.0.

As a last remedy, I introduce additional subsamples. This is not a technical trick, but accounts for possible – and reasonable – differences between professional categories. However, creating too small subsamples put convergence of the overall model at risk. Thus, I subsume flying personnel and senior staff officers with career officers in one subsample. In addition, I merge specialist career officers and specialist career NCOs into one subsample, and contracted officers and contracted NCOs into another. Career NCOs form their own subsample, as do civilian employees. These categorizations are in line with the characteristics of these these groups and not atypical in practice (see chapter 2.1.2.1).

Including these 5 subsamples separately in the analysis finally yields a $\chi^2/df = 5.406$. This is close to the canonical threshold, which is acceptable; for a large sample size and large numbers of variables,

68 «Overall» refers to the fact that it is the loading for the whole sample, and not for a subsample.

there is no concern when incremental fits (CFI, TLI) are slightly lower, as long as the $RMSEA$ is better than expected (Kenny & McCoach, 2003, p. 349).

In summary, there is evidence for the separability of vocational commitment components. Hair et al.'s (2010) validity criteria are fulfilled, and model fit indices are acceptable given the situation of large sample size and large number of variables. Thus, hypothesis 5.1.b is satisfied.

Table 5.4: Fit indices[a] for five different Confirmatory Factor Analysis[b] models for vocational commitment variables VC using Maximum Likelihood technique.

Model[c]	χ^2	df	χ^2/df	$\Delta\chi^2$	$SRMR$	CFI	TLI	$RMSEA$ [$CI_{90\%}$]
11/1+0/ML	730.223	41	17.810		.065	.922	.895	0.094 [0.088, 0.100]
11/1+2/ML	1 493.710	123	12.144	−5.666	.065	.922	.896	0.054 [0.052, 0.057]
10/1+2/ML	1 381.261	96	14.388	2.244	.070	.921	.889	0.059 [0.057, 0.062]
10/1+2/ML†	863.422	90	9.594	−4.794	.061	.953	.929	0.048 [0.045, 0.050]
10/1+5/ML†	973.150	180	5.406	−4.188	.063	.952	.927	0.034 [0.032, 0.036]

[a] $SRMR$ Standardized Root Mean Square of Residuals, CFI Comparative Fit Index, TLI Tucker Lewis Index, $RMSEA$ Root Mean Square Error Approximation.
[b] $n = 2\,697$.
[c] 11/1+0: all 11 VC items, 1 sample and no subsamples.
11/1+2: all 11 VC items, 1 sample and 2 subsamples (military professionals and civilian employees).
10/1+2†: VC_{DISAP} excluded, 1 sample and 2 subsamples (military professionals and civilian employees). 2 error covariances freed.
10/1+5†: VC_{DISAP} excluded, 1 sample and 5 subsamples (military professionals split in 4 categories, civilian employees). 2 error covariances freed.

To conclude this introductory part, Pearson correlations of the 3 OC items, the 3 VC items and the psychological contract's fulfillment F items are presented in table 5.5. This is an exploratory preview of the relationships between OC and F, subject to chapter 5.4.2, and between OC and VC, treated in chapter 5.4.3.

5.4.2 The relationship between the psychological contract and organizational commitment

Proposition 5.1 is the central statement of chapter 5, suggesting that the continuance, affective, and normative components of organizational commitment correspond to the transactional, relational, and ideational layers of the psychological contract. To corroborate this correspondence, both hypotheses 5.2 and 5.3 have to be supported. Therefore, the factor structure of psychological contract fulfillment F (figure 4.5) and the one of organizational commitment OC (figure 5.2) need to be integrated into one single model. The resulting model (figure 5.3) was established for the whole sample and 3 subsamples in parallel, as well as for the models in F and OC. Model fit indices suggest excellent model fit ($\chi^2 = 2\,564.4$, $\chi^2/df = 2.731$, $SRMR = .0382$, $CFI = .967$, $TLI = .962$, $RMSEA$ [$CI_{90\%}$] $= .018$ [.017, .019]), better than each of the preliminary models. At the same time, the model shows excellent convergent reliability and good convergent and divergent validities (table 5.6).

Table 5.5: Descriptives and Pearson correlations[a] for fulfillment of the psychological contract F, organizational commitment OC, and vocational commitment VC.

	F_{trans}	F_{relat}	F_{ideat}	OC_{cont}	OC_{affe}	OC_{norm}	VC_{cont}	VC_{affe}	VC_{norm}
F_{trans}	(.582)								
F_{relat}	.411***	(.863)							
F_{ideat}	.374***	.398***	(.854)						
OC_{cont}	.207***	.072***	.085***	(.776)					
OC_{affe}	.190***	.265***	.144***	.204***	(.858)				
OC_{norm}	.128***	.267***	.129***	.239***	.414***	(.789)			
VC_{cont}	.144**	.046*	.086***	.711***	.183***	.341***	(.792)		
VC_{affe}	.244***	.266***	.139***	.246***	.584***	.372***	.287***	(.856)	
VC_{norm}	.204***	.208***	.154***	.395***	.375***	.612***	.497***	.457***	(.753)
Mean	−0.109	−0.353	−0.368	3.162	4.965	3.298	3.155	4.933	3.337
S. D.	0.486	0.646	0.656	1.317	0.983	1.346	1.185	0.825	1.056

[a] $n = 2\,803$ for correlations between F_i and OC_k scales, and $n = 1\,902$ for scales involving VC_ℓ scales.
[b] Scale reliabilities (Cronbach's α) for the final scales, that is, after eventual omission of single items, along the diagonal in (parentheses).
† $p < .1$, $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$ (2-tailed).

Table 5.6: Validity measures[a] according to Hair et al. (2010) for psychological contract fulfillment F and organizational commitment OC.

	CR	AVE	MSV	ASV	F_{trans}	F_{relat}	F_{ideat}	OC_{cont}	OC_{affe}	OC_{norm}
F_{trans}	.842	.728	.452	.202	*.853*					
F_{relat}	.858	.549	.452	.175	.672	*.741*				
F_{ideat}	.861	.555	.328	.123	.573	.472	*.745*			
OC_{cont}	.790	.564	.108	.046	.328	.102	.103	*.751*		
OC_{affe}	.863	.678	.251	.104	.296	.305	.173	.241	*.823*	
OC_{norm}	.795	.566	.251	.090	.191	.308	.154	.212	.501	*.753*

[a] Thresholds for convergent validity: composite reliability $CR > .707$, average variance extracted $AVE = .5$.
Criteria for discriminant validity: $AVE > MSV$ (Maximum Shared Variance), $\sqrt{AVE}$ (in *italics* on the diagonal of the triangular correlation matrix at the right side) greater than any correlation with another factor.

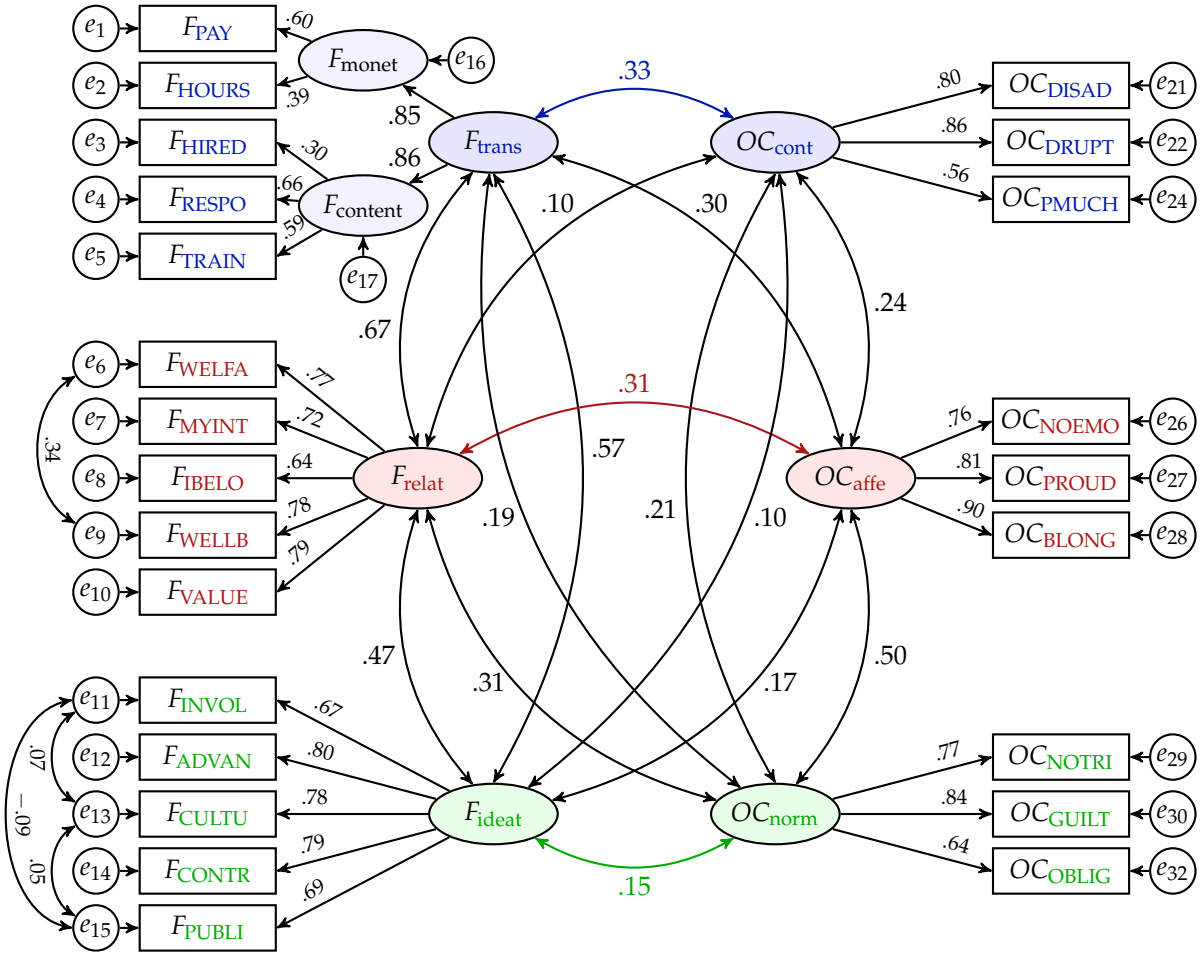

Figure 5.3: The structural equation model uniting psychological contract fulfillment F and organizational commitment OC factors and items.

Correlations between the three psychological contract layers and the three *respective* organizational commitment components are according to proposition 5.1, that is, $r_{F_{\text{trans}} \leftrightarrow OC_{\text{cont}}} = .328$, $r_{F_{\text{relat}} \leftrightarrow OC_{\text{affe}}} = .305$, and $r_{F_{\text{ideat}} \leftrightarrow OC_{\text{norm}}} = .154$ are all significantly ($p < .001$) different from 0 (colored arrows in figure 5.3). Thus, hypothesis 5.2 is supported.

Testing hypothesis 5.3 calls for a comparison of correlations. To test for differences, I compare correlations following Zou's (2007) procedure for overlapping correlations. Thus I determine confidence intervals, performing parametric bootstrap ($B = 3\,000$) with bias-corrected estimates (Efron & Tibshirani, 1993). $r_{OC_{\text{affe}} \leftrightarrow F_{\text{trans}}} = .296$ is not significantly ($p > .1$) different from $r_{OC_{\text{cont}} \leftrightarrow F_{\text{trans}}} = .328$, contrary to hypothesis 5.3.a.i, but $r_{OC_{\text{affe}} \leftrightarrow F_{\text{trans}}} = .191$ is significantly ($p < .001$) smaller, supporting hypothesis 5.3.a.ii.

$r_{OC_{\text{norm}} \leftrightarrow F_{\text{relat}}} = .308$ is not significantly ($p > .1$) different from $r_{OC_{\text{affe}} \leftrightarrow F_{\text{relat}}} = .305$, contrary to hypothesis 5.3.b.i, but $r_{OC_{\text{cont}} \leftrightarrow F_{\text{relat}}} = .102$ is significantly ($p < .001$) smaller, supporting hypothesis 5.3.b.ii.

$r_{OC_{\text{cont}} \leftrightarrow F_{\text{ideat}}} = .103$ is smaller than $r_{OC_{\text{norm}} \leftrightarrow F_{\text{ideat}}} = .154$ with marginal significance ($p < .1$), but $r_{OC_{\text{affe}} \leftrightarrow F_{\text{ideat}}} = .173$, $p > .1$ is not. Thus, hypothesis 5.3.c.i is marginally supported and hypothesis 5.3.c.ii rejected.

To summarize, the findings fully support hypothesis 5.2, but they only partially support hypothesis 5.3. The consequences for proposition 5.1 are discussed in chapter 5.5.2.

As an overview, the *HRM* matrix according to equation (5.1) reads

$$HRM = \begin{pmatrix} r_{\text{tc}} & r_{\text{ta}} & r_{\text{tn}} \\ r_{\text{rc}} & r_{\text{ra}} & r_{\text{rn}} \\ r_{\text{ic}} & r_{\text{ia}} & r_{\text{in}} \end{pmatrix} = \begin{pmatrix} .328 & .296 & .191 \\ .102 & .305 & .308 \\ .103 & .173 & .154 \end{pmatrix} . \tag{5.3}$$

This matrix serves as a reference point to the construct distance measure I develop in appendix B.1.

Next, 1st and 2nd order relationships between the three F layers and the respective three OC components are tested, according to hypothesis 5.4. Therefore, polynomial regression models are established, with control variables chosen in preliminary models, according to chapter 3.6.4. Some of the organizational control variables do not apply for all subsamples (e. g., senior active reservists do not have wage brackets *LK*); these models were performed separately for the three subsamples. 18 models for potential controls (*EMPLO*, $RANK/\delta_{\text{officer}}$, *EDUC*, *LK*, *WAGE*, *EMPLO*, *GENDER*) were included. I excluded $TENURE_{\text{min,max}}$, because these variables potentially parcel out parts of the assumed underlying relationship, in particular with regard to transactional contracts and OC_{cont}. Additionally, I omit *AGE*, given its high correlation with *TENURE*. Instead, I investigate the effect of these variables *post hoc* and exploratively.

Hypothesis 5.4.a suggests that the relationship between transactional fulfillment F_{trans} and continuance organizational commitment OC_{cont} is curvilinear and positive, with decreasing slope for increasing F_{trans}. Table 5.7 reveals that the effect of F_{trans} on OC_{cont} is highly significant ($p < .001$) for all three subsamples, but contrary to expectations, all relationships are linear. Effect sizes for F_{trans} are small, between $f^2 = .015$ and .017 (Cohen, 1988). In addition, the absolute level of promises P_{trans} has a highly

significant ($p < .001$) and positive impact on OC_{cont} for military professionals, but the effect is almost vanishing, $f^2 = .008$. Thus, hypothesis 5.4.a is partly supported. The suggested relationship is found, and F is clearly more relevant than P, but the relationship is only linear, contrary to expectations.

Hypothesis 5.4.b states that higher relational fulfillment F_{relat} leads to higher affective organizational commitment OC_{affe}, with diminishing increase for overfulfillment. According to findings table 5.8, the relationship is indeed positive and highly significant ($p < .001$) for all subsamples, but the expected curvilinearity is significant for senior active reservists only, $p < .01$. In addition, promised inducements P_{relat} have a significant ($p < .05$), but virtually evanescent impact on OC_{affe}. Effect sizes are small to medium, $f^2 = .064$ up to .128. To summarize, hypothesis 5.4.b was mostly supported, but curvilinearity was non-significant ($p > .05$) for employees.

According to hypothesis 5.4.c, higher ideational fulfillment F_{ideat} leads to higher normative organizational commitment OC_{norm}. In contrast to the other layers, no curvilinear relationship is expected. As table 5.9 shows, these predictions are mostly met. For military professionals, the effect in F_{ideat} is indeed linear and highly significant ($p < .001$), though again with smaller effect size, $f^2 = .022$, and significant ($p < .05$), but virtually vanishing effect in F_{ideat}. Similarly for civilian employees, the hypothesized relationship is ($p < .001$) with a small effect size $f^2 = .035$, including a very small, negative moderation effect ($p < .05$) senior active reservists ($p < .001$). For senior active reservists, there is a small (1.6%), linear, and highly significant ($p < .001$) effect of F_{ideat} on OC_{norm}, but accompanied by a slightly bigger (2.0%) effect of P_{ideat}. In addition, introducing squared terms turns the linear coefficient in F_{ideat} insignificant ($p > .05$), but introduces a significantly ($p < .05$) negative term for F^2_{ideat}, indicating attenuation for higher levels of F_{ideat}. In all model steps for senior active reservists, there is a significantly positive term in P_{ideat}. Effect sizes are small for both linear impact of F_{ideat} ($f^2 = .016$) and including squared terms ($f^2 = .027$). To summarize, hypothesis 5.4.c is mostly supported, with unexpected moderation effect for civilian employees, and unexpected curvilinearity for senior active reservists.

Exploratively, I investigate the inclusion of AGE or $TENURE_{Min/Max}$ as additional control variables. These additional variables slightly reduce the $OC_c \leftarrow F_t$ relation, slightly raise the $OC_a \leftarrow F_r$ relation, and do not impact the $OC_n \leftarrow F_i$ relation at all. In all models, $TENURE_{Min/Max}$ impact these relationships slightly more than AGE, but all changes in explained variances are small to negligible, with $\Delta R^2 = .5\%$ of the variance in OC_{affe}, $\Delta R^2 = -.2\%$ of the variance in OC_{cont}, and $\Delta R^2 = .5\%$ of the variance in OC_{affe} at most, and $\Delta R^2 < .1\%$ of the variance in OC_{norm}. Thus, exclusion of these variables does not compromise findings with respect to hypothesis 5.4.

To summarize, hypothesis 5.4 is partially supported, significantly buttressing predictions about general relationships, but with varying results with regard to suggested or non-suggested curvilinearity. Effect sizes are small for transactional and ideational contracts, and small to medium for relational contracts.

Table 5.7: Hierarchical polynomial regression[a] of continuance organizational commitment OC_c on transactional fulfillment F_t and promised transactional inducements P_t.

	military professionals[a]				civilian employees[b]				senior active reservists[c]			
Step→	1	2	3	4	1	2	3	4	1	2	3	4
EDUC	-0.301^{***}	-0.299^{***}	-0.292^{***}	-0.291^{***}	-0.304^{***}	-0.303^{***}	-0.282^{***}	-0.285^{***}	-0.126^{***}	-0.126^{***}	-0.118^{**}	-0.119^{**}
LK	0.184^{***}	0.200^{***}	0.207^{***}	0.207^{***}	-0.016	-0.009	-0.010	-0.006				
WAGE									$-0.062^{\dagger}$	-0.054	-0.058	-0.060
P_t		0.088^{**}	0.105^{***}	0.108		0.042	0.037	-0.024		0.031	0.055	0.099
F_t			0.122^{***}	0.103^{**}			0.117^{***}	0.128^{***}			0.131^{***}	0.141^{***}
P_t^2				-0.003				0.130				-0.008
$P_t \times F_t$				-0.028				-0.096				-0.077
F_t^2				0.059				0.063				0.056
R^2	.059	.066	.081	.082	.098	.100	.113	.116	.025	.026	.042	.046
ΔR^2	.059	.007	.014	.002	.098	.002	.013	.003	.025	.001	.017	.003
F_{inc}	31.012^{***}	7.909^{**}	15.646^{***}	0.591	53.925^{***}	1.859	14.794^{***}	1.051	10.154^{***}	0.748	13.815^{***}	0.885

[a] $n = 997$.
[b] $n = 995$.
[c] $n = 811$.
$^{\dagger}\, p < .1$, $^{*} p < .05$, $^{**} p < .01$, $^{***} p < .001$ (2-tailed).

Table 5.8: Hierarchical polynomial regression[a] of affective organizational commitment OC_{a} on relational fulfillment F_{r} and promised relational inducements P_{r}.

	military professionals[a]				civilian employees[b]				senior active reservists[c]			
Step→	1	2	3	4	1	2	3	4	1	2	3	4
$EDUC$	-0.172^{***}	-0.174^{***}	-0.151^{***}	-0.154^{***}	-0.235^{***}	-0.235^{***}	-0.205^{***}	-0.204^{***}	-0.179^{***}	-0.175^{***}	-0.150^{***}	-0.156^{***}
$RANK$	0.236^{***}	0.240^{***}	0.255^{***}	0.251^{***}					0.307^{***}	0.300^{***}	0.275^{***}	0.280^{***}
δ_{officer}	-0.131^{*}	-0.131^{*}	-0.149^{*}	-0.149^{*}					-0.074	-0.075	-0.098^{*}	-0.103^{*}
LK					0.049	0.051	0.053	0.055				
P_{r}		0.036	0.068^{*}	0.087		0.016	0.061^{*}	0.059		-0.068^{*}	0.007	-0.003
F_{r}			0.246^{***}	0.258^{***}			0.269^{***}	0.207^{***}			0.324^{***}	0.227^{***}
P_{r}^2				-0.058				0.027				-0.009
$P_{\mathrm{r}} \times F_{\mathrm{r}}$				-0.063				0.046				-0.028
F_{r}^2				-0.031				-0.047				-0.140^{**}
R^2	.023	.024	.083	.086	.045	.046	.115	.117	.070	.074	.171	.179
ΔR^2	.023	.001	.059	.003	.045	.000	.070	.002	.070	.005	.097	.008
F_{inc}	7.709^{***}	1.300	63.814^{***}	1.095	23.568^{***}	0.255	77.786^{***}	0.828	20.133^{***}	3.945^{*}	93.834^{***}	2.709^{*}

[a] $n = 997$.
[b] $n = 995$.
[c] $n = 811$.
[†] $p < .1$, $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$ (2-tailed).

Table 5.9: Hierarchical polynomial regression[a] of normative organizational commitment OC_{n} on ideational fulfillment F_{i} and promised ideational inducements P_{i}.

	military professionals[a]				civilian employees[b]				senior active reservists[c]			
Step→	1	2	3	4	1	2	3	4	1	2	3	4
EDUC	-0.107^{***}	-0.107^{***}	-0.101^{**}	-0.098^{**}	-0.145^{***}	-0.146^{***}	-0.131^{***}	-0.137^{***}	-0.133^{***}	-0.118^{***}	-0.113^{**}	-0.116^{***}
P_{i}		0.047	0.062^{*}	$0.085^{\dagger}$		0.102^{**}	0.117^{***}	0.069		0.144^{***}	0.171^{***}	0.112^{*}
F_{i}			0.145^{***}	$0.103^{\dagger}$			0.161^{***}	0.270^{***}			0.128^{***}	0.077
P_{i}^2				0.003				0.020				0.068
$P_{\text{i}} \times F_{\text{i}}$				0.074				-0.099^{*}				-0.055
F_{i}^2				0.009				0.068				-0.119^{*}
R^2	.011	.014	.034	.037	.021	.032	.057	.064	.018	.038	.054	.064
ΔR^2	.011	.002	.021	.002	.021	.010	.025	.007	.018	.020	.016	.010
F_{inc}	11.423^{***}	2.187	21.381^{***}	0.782	21.400^{***}	10.669^{**}	26.793^{***}	$2.417^{\dagger}$	14.543^{***}	17.151^{***}	13.292^{***}	2.819^{*}

[a] $n = 997$.
[b] $n = 995$.
[c] $n = 811$.
† $p < .1$, $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$ (2-tailed).

5.4.3 Differences between organizational and vocational commitment

Hypothesis 5.5 seeks to compare the relationships between vocational and organizational commitment towards the psychological contract, both for military professionals and civilian employees. Therefore, I construct a structural equation model, integrating the model for psychological contract fulfillment (figure 4.5) and the TCM of vocational commitment (see table 5.4). Again, the model includes the whole sample and both subsamples in parallel, yielding good to excellent fit indices ($\chi^2 = 2\,540.33$, $\chi^2/df = 3.299$, $SRMR = .0446$, $CFI = .955$, $TLI = .947$, $RMSEA = .025$) and no validity concerns. Figure 5.4 shows the resulting model. The extended model with 5 subsamples, as applied in testing hypothesis 5.1.b, shows an even better model fit ($\chi^2 = 3\,420.113$, $\chi^2/df = 2.219$, $SRMR = .0446$, $CFI = .952$, $TLI = .942$, $RMSEA = .018$). However, given that hypothesis 5.5 refers to the broader two subsamples only, using the more parsimonious model seems adequate.[69]

The idea is now to compare $r_{F_j \leftrightarrow VC_k}$ and $r_{F_j \leftrightarrow OC_k}$ of military professionals and civilian employees for $(j,k) = (\mathrm{t},\mathrm{c}),\ (\mathrm{r},\mathrm{a}),\ (\mathrm{i},\mathrm{n})$. Thus I derive confidence intervals by means of parameter-free Monte-Carlo bootstrapping, and perform significance tests based on bias-corrected confidence intervals (Efron & Tibshirani, 1993), following Zou's (2007) method for overlapping regressions. To account for the overlap between OC_j and VC_j, I establish a separate structural equation model for the $n = 1\,902$ employees.

First, I test hypothesis 5.5.a. In line with predictions, the relationship between VC and F does not differ significantly from the one between OC and F for any of the commitment components among military professionals. This finding supports hypothesis 5.5.a: among military professionals, vocational commitment is as closely aligned to the psychological contract as organizational commitment is.

Next, I test hypothesis 5.5.b. In line with predictions, the relationship between VC and F is weaker than between OC and F among civilian employees. However, only $r_{VC_c \leftrightarrow PC_t} = .201$ is significantly ($p < .01$) smaller than $r_{OC_c \leftrightarrow PC_t} = .294$, but for affective and normative commitments, loadings do not differ significantly ($p > .1$). To summarize, the findings support hypothesis 5.5.b, and only continuance commitment contributes to the predicted difference.

To conclude, there is evidence for hypothesis 5.5 both with regard to military professionals and civilian employees. The consequences of this are discussed in chapter 5.5. To compare, appendix B.2 presents an alternative approach to this hypothesis.

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69 Beyond the scope of hypothesis 5.5, investigation of the more detailed model reveals notable differences. For instance, $r_{F_t \leftrightarrow VC_c} = .47$ is considerably stronger for specialized career officers/NCOs than for other vocational categories. In other words, their continuance commitment towards the vocation is very strongly linked to the transactional exchange with the employer, which may be read as a particularly monopsonistic situation. Another idiosyncratic finding is $r_{F_t \leftrightarrow VC_a} = -.02$, $p > .05$ for contracted officers/NCOs. Apparently, their affective commitment towards the vocation is independent of the relational psychological contract with the Swiss Armed Forces. This may be due to the fact by the time of the survey, most contracted officers/NCOs are prospective career officers/NCOs, and their actual vocation is though only a transitory one.

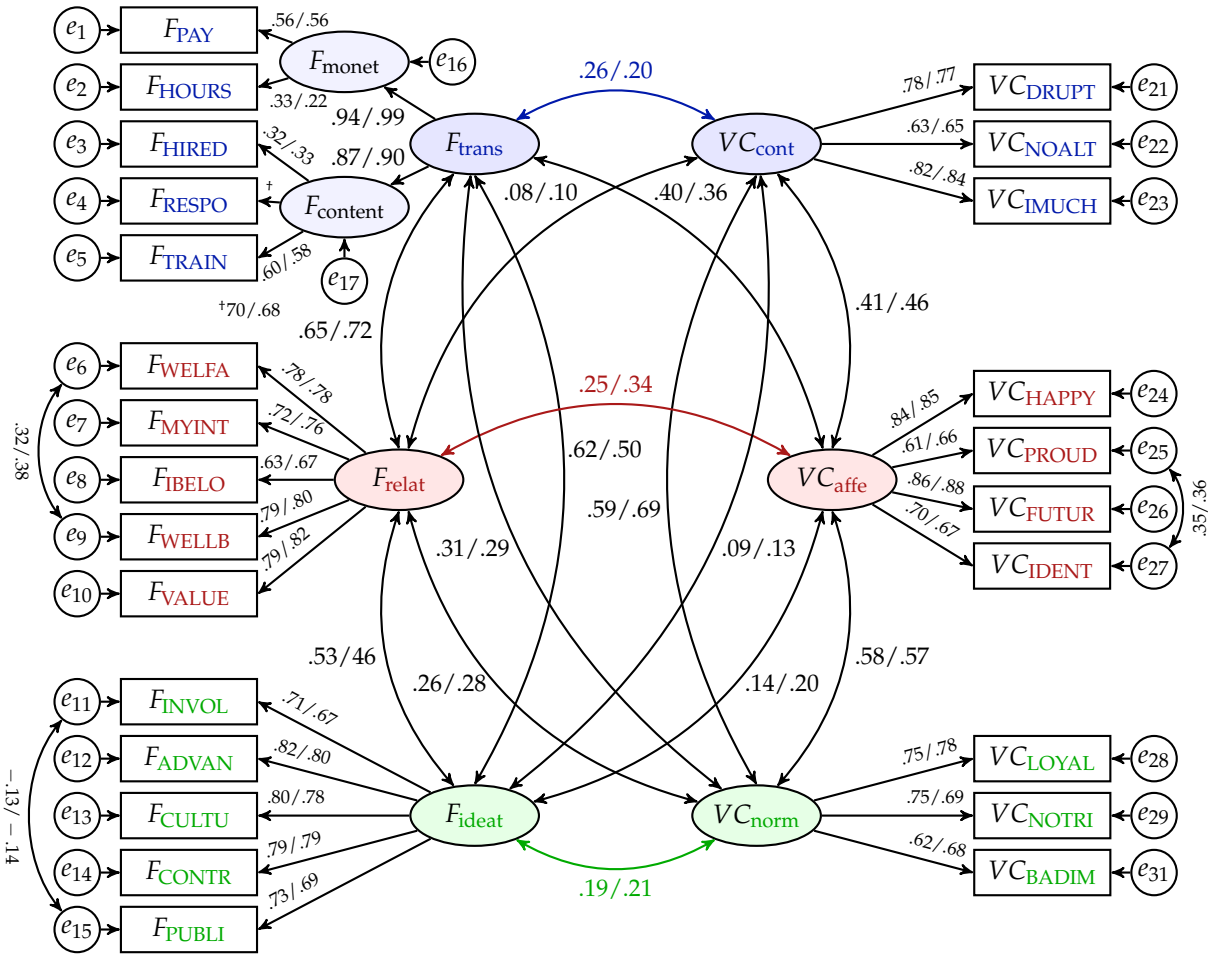

Figure 5.4: The structural equation model uniting psychological contract fulfillment F and vocational commitment VC factors and items for employees of the Swiss Armed Forces. Standardized regression weights and correlations are indicated for military/civilian employees.

Table 5.10: Overview of findings regarding structure of organizational and vocational commitment (OC and VC) (chapter 5.4.1), relationship between OC and psychological contract fulfillment F (chapter 5.4.2), and different relations of OC/VC towards F (chapter 5.4.3).

Hypo.	Focus	Findings	Comment
5.1	Separability of OC and VC into three components, respectively	supported	–
5.2	Main relations between OC components and F layers	supported	–
5.3	Secondary relations between OC components and other F layers	partially supported	3 of 6 crossover relations not significantly smaller than main relations
5.4	Nonlinear relations between OC, F, and P	mostly supported	all main relations, but only 5 of 9 curvatures according to expectations
5.5	subsample-specific differences between $OC \leftrightarrow F$ and $VC \leftrightarrow F$	supported	differences significant only for the transactional/continuance dimension

5.5 Discussion

An overview of all hypotheses in chapter 5.4 can be found in table 5.10.

5.5.1 Summary and contribution

The main construct of this chapter is organizational commitment in the three-component model (TCM; N. J. Allen & Meyer, 1990). Confirmatory factor analysis (CFA; Ullman, 2013) suggests that organizational commitment consists of continuance, affective, and normative commitment, supporting hypothesis 5.1.a. The same factor structure appeared for military professionals, civilian employees, and senior active reservists, supporting the micro-generalizability (Jaros, 2007) of the TCM. Similarly, CFA confirmed the factor structure of vocational commitment for military professionals and civilian employees (hypothesis 5.1.b). To summarize, TCM is generalizable to the present setting. Notably, this includes CC for senior active reservists. This finding is not self-evident, given that the relationship between reservists and armed forces is barely defined in economic terms (see chapter 2.1.2.3).

The central proposition 5.1 of chapter 5 suggested that the transactional, relational, and ideational layers of the psychological contract correspond to the continuance, affective, and normative components of organizational commitment, respectively. The proposition is based on three independent argumentation lines. First, psychological contract layers correspond to the three influence types (compliance, identification, and internalization, Kelman, 1958; Thompson & Bunderson, 2003). These influence types, in turn, form the base for Kanter's (1968) commitment components, which may be associated with the components of the TCM (N. J. Allen & Meyer, 1990, and chapter 5.2.3). Second, psychological

contract layers and organizational commitment components may both be traced back to three distinct motivational bases of reciprocity, namely utilitarian, attraction-based, and norms (Greenberg, 1980; Meyer & Parfyonova, 2010; Gouldner, 1960; Coyle-Shapiro & Parzefall, 2008). The third argument refers to different organization types, arising from social exchange theory (Blau, 1964), denoted as transactional, social exchange-based, or covenantal (Graham & Organ, 1993). Their familiarity with organizational commitment components follows from Graham and Organ's (1993) descriptions, and Thompson and Bunderson (2003) have suggested these organization types to be «theoretical cousins» of the three psychological contract layers.

Proposition 5.1 was tested by hypotheses 5.2 and 5.3, confirming the main relationships between layers and components, but also revealing considerable and non-hypothesized relationships across dimensions. However, given the substantial overlap of layers (see chapter 4.4.1) and several notions of non-exclusivity of the organizational commitment components and underlying concepts (N. J. Allen & Meyer, 1990; Kanter, 1968; Greenberg, 1980), it is not surprising that each layer is also related to the other components. Nonetheless, these relations – called secondary from now on – were expected to be considerably smaller than the main relations. However, this was only the case for 3 out of 6 relations. This finding is of importance to both further research and practical interpretation. Therefore, it is elaborated separately in chapters 5.5.2 to 5.5.4.

Hypothesis 5.4 investigated these relationships by polynomial regression analysis (Edwards & Parry, 1993; Edwards, 1994). Beyond the suggestions of hypothesis 5.2, promised inducements P, squared terms F^2, P^2, and (same-layer) interaction terms $F \times P$ were included. All predictions regarding 1^{st} order relationships between fulfillment layers and commitment components were supported, with small effect sizes for transactional and ideational, and small to medium effect sizes for relational contracts. Furthermore, 2^{nd} order relationships did not fully meet expectations for several subsamples. These particular findings are discussed layer by layer in the following paragraphs.

With respect to OC_{cont}, figure 5.5 shows the generally lower levels found for senior active reservists, when compared to employees. This, of course, is conceivable, given that the relationship between reservists and the armed forces is not primarily an economic one. Nevertheless, the same mechanics between transactional contract fulfillment and continuance commitment appear, which is a strong support for the generalizability of the relations found. Apparently, a perceived deficiency of economic inducements has the same negative impact on continuance commitment for senior active reservists as for employees.

In addition, the suggested curvilinear effect was not found for either of the subsamples. An observation regarding the F-scale suggests an explantation for this. The scale is centered at the midpoint, with $F = 0$ suggesting exact fulfillment, the mean of -0.109 is at the left side (as for the other F scales, see table 5.5). It is unsurprising indeed that more individuals report they are underpaid, than overpaid, that they do not receive enough training, and so forth. Thus, a point towards overfulfillment may weight more to the individual than a point towards underfulfillment. If this, however, was reflected by a scale transformation (stretching the right site, shrinking the left side, or both), the suggested

curvilinearity would appear. The scale thus remains as a potential limitation to the study, to be addressed in chapter 5.5.3.

Beyond the hypothesized relations, there is a noticeable difference in the effect of the control variables. According to table 5.7, the wage bracket *LK* has a highly significant ($p < .001$) positive impact on OC_{cont} for military professionals, but no impact at all for civilian employees ($p < .05$). In addition, the buffering effect of education *EDUC* on OC_{cont} is about twice as high for civilian employees as for military professionals. This particular finding reflects the monopsonistic character *and* formation of military professionals, and reminds one of a «golden handcuff» setting (Hendry & Jenkins, 1997).

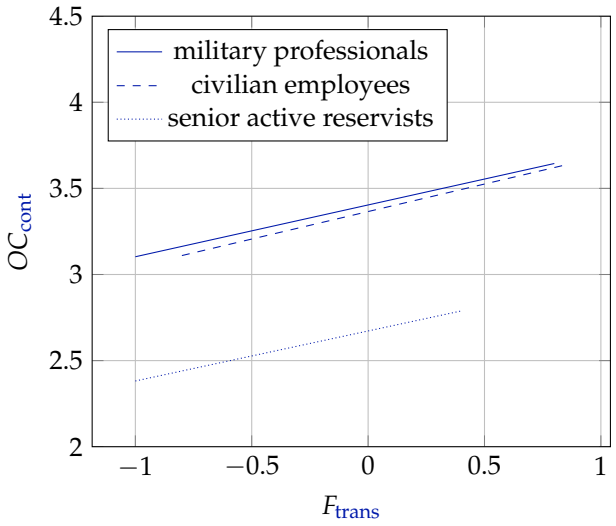

Figure 5.5: Continuance organizational commitment varies for different degrees of transactional contract fulfillment. Only significant estimates were considered for this plot. Domain is restricted to ± 2 S. D. for each subsample.

For OC_{affe}, figure 5.6 indicates the highest average levels of all organizational commitment components, but with an striking divergence between subsamples for strong under-fulfillment, where senior active reservists report considerably lower OC_{affe}. This finding may be explained by non-negligible coercion; employees may leave the Swiss Armed Forces within 2 – 6 months, depending on their tenure and whether their vocation is considered a *monopolberuf* (BPV, 2016, art. 30a) – and, by mutual consent, even faster. In contrast, reservists are bound to a certain age, according to their rank (MG, 2016, art. 13). Thus, whereas employees with low affective commitment may select themselves out within weeks to months, senior active reservists may be constrained to stay for years, explaining the greater variance of OC_{affe} within the subsample. This, at least partly, is the reason why F_{relat} explains considerably more variance in OC_{affe} (see table 5.8) – there *is* more variance.

This difference between subsamples may also explain why curvilinearity was found for senior active reservists only. Indeed, the coefficients of F_r^2 are negative as well for military professionals and civilian employees, but are far from being significant ($p = .322$ and $p = .530$; increased standard errors, due to multicollinearity in PRA, contribute to this issue). In addition, the same scale-related argument as

for OC_{cont} may explain missing the curvilinearity: it may likely take more to answer an item such as F_{VALUE}, «The Swiss Armed Forces value me as an individual» by «somewhat/considerably more than promised» than «somewhat/considerably less than promised». This is again reflected in the below-zero mean (table 5.5). Further, strongly left-skewed OC_{affe} items, with means between 4.81 and 5.12 on a [1,6]-scale (see table 5.2), may additionally have hampered measurements. Considering all these issues, effect sizes f^2 between .064 and .128 are respectable.

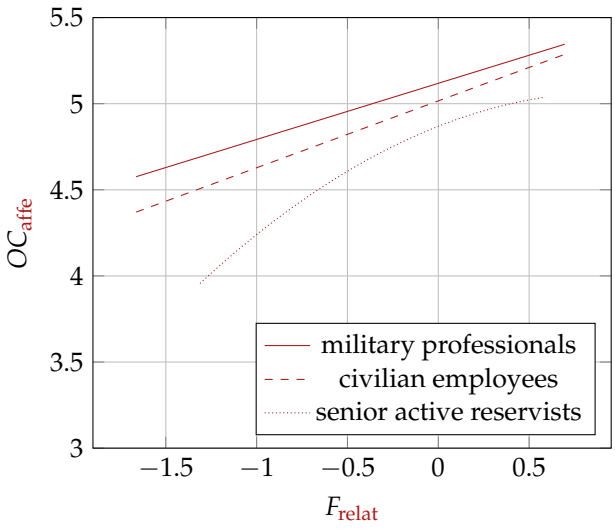

Figure 5.6: Affective organizational commitment varies for different degrees of relational contract fulfillment. Only significant estimates were considered for this plot. Domain is restricted to ±2 S.D for each subsample.

Regarding the third component, OC_{norm}, three findings deserve attention and offer interpretation. First, employees' OC_{norm} depends linearly on ideational fulfillment, but for senior active reservists, the relationship is curvilinear – contrary to expectations. Second, there is a moderating effect of ideational promises, but only for civilian employees. Third, there is considerably less variance explained for military professionals than for civilian employees or senior active reservists. Forth, the absolute OC_{norm} level is significantly higher for senior active reservists. These findings are interpreted in the next four paragraphs.

Figure 5.7 illustrates how reservists are the only subsample where normative commitment depends curvilinearly on ideational fulfillment, contrary to the hypothesis of linearity. However, table 5.9 reveals that 2nd order terms add only modestly to the overall picture.[70] Notably, there is not even a tendency for such an attenuation in the other two subsamples. A suggestive interpretation would be that the left side of the graph reflects the «proper» relation, being subject to some general ceiling effect; an effect which does not occur for the other subsamples, however, given their lower average level. Aside from

70 To correct for this potentially spurious effect, the non-significant coefficient to F_{ideat} is considered for once in figure 5.7. Omitting the term, as usual, would likely distort representation.

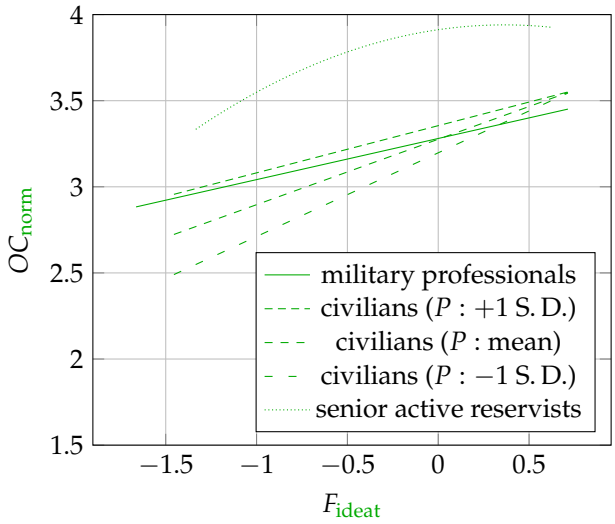

Figure 5.7: Normative organizational commitment varies for different degrees of ideational contract fulfillment. The non-significant term to F_i^2 was considered for the senior active reservists-plot. Domain is restricted to ± 2 S. D. for each subsample.

the different levels, this interpretation is not corroborated by additional evidence and remains purely speculative, calling for further studies.

The moderating effect of P_{ideat} on the $F_{ideat} \rightarrow OC_{norm}$ relationship for civilian employees implies that the level of ideational promised inducements does not change normative organizational commitment, as long as these promises are fulfilled or even over-fulfilled. However, under-fulfillment has a stronger decreasing impact on normative commitment for *low* levels of promises than for high levels. Apparently, a high level of perceived promises corresponds to a frame where the individual is less sensitive to the effective fulfillment. In contrast, individuals who perceive only a few ideational promises show comparatively less normative commitment. This is rather surprising for two reasons. On the one hand, the opposite would have been just as conceivable, where under-fulfillment of higher promises leads to stronger deterioration; but evidently, ideational contracts are not prone to such a tit-for-tat logic. On the other hand, it remains open why this moderating effect is not found for military professionals or senior active reservists. For military professionals, however, this may be explained by the same reasoning as the finding in the next paragraph.

Table 5.9 reveals that for military professionals, ideational contracts explain substantially less of the variance in OC_{norm}, only $R^2 = 2.3\%$, as compared to civilian employees (7.0%) or even senior active reservists (10.2%). I suggest *professionalism* as a potential explanation. Although it is disputed whether military professionals have higher moral standards, the professional context calls for deeper rooted moral obligations for the military profession (Ficarrotta, 1997). This is not to say that normative commitment was necessarily congruent with moral standards in general. Nevertheless, the comparatively low explained variance in normative commitment found could be an indicator of a more stable moral setting of military professionals. This, beyond doubt, is a strong claim and must thus be left to further research.

Senior active reservists report a considerably higher average level of OC_{norm}. This finding, independent of the hypothesized relationship between ideational fulfillment and normative commitment, has two important consequences, one of them adding to a well-known Organizational Behavior issue, the other referring to a classical Armed Forces and Society proposition. The issue is the one of the discriminant validity between affective and normative commitment. To recall Gade (2003), «If NC cannot be demonstrated in the military services, I doubt it can be demonstrated anywhere» (p. 165); but in fact this demonstration occurred in this study. The high covariance of $r_{affe-norm} = .50$ between both constructs notwithstanding, validity measures tables 5.3 and 5.6 (Hair et al., 2010) provide construct validity, and subsample-specific differences add face validity: military professionals consistently report higher OC_{affe}, but lower OC_{norm} as compared to senior active reservists, implying that a conceptual difference between these components of commitment. Further, the measurable difference between employees and conscripts contributes to suggestions of the I/O thesis (Moskos, 1977b, see chapter 2.2.3).

Tests of hypothesis 5.5 revealed that for employees, *vocational* commitment is related to the psychological contract in a remarkably similar way to relationships between *organizational* commitment and the psychological contract. That is, psychological contract layers often evoke the same commitment pattern with regard to one's vocation as with regard to the organization.

For military professionals, relationships follow the same pattern across all layers and components, which is consistent with expectations. Also in line with expectations, the link is less strong for civilian employees. However, relationships are comparable for all but the economic dimensions. On the one hand, this implies that vocation and organization are not interchangeable from an economic attitudinal perspective, in contrast to the case of military professionals. On the other hand, the links are as strong in terms of socio-emotional and ideological inducements. To derive consequences from these findings, the following interpretation is suggested.

Monopsony in its canonical understanding is the market situation were only one buyer exists for an offered product; however, monopsony may also be understood as a situation where the labor supply is not infinitely elastic (Manning, 2003, p. 3). Heterogeneous preferences are plausible sources for such market frictions (p. 4). Thompson and Bunderson's (2003) wording of economic, socio-emotional, and ideological currency offers a descriptive interpretation of different monopsonistic situations. The employee subject to canonical monopsony, for instance the highly specialized military professional, *can* not find work outside the Swiss Armed Forces. Another employee, although his employability may permit him to find work outside the military, does not *want* to, since he is subject to socio-emotional monopsony. Yet another employee *ought* not to work elsewhere, because the Swiss Armed Forces is the only buyer in terms of ideological currency. In this suggestive terminology, evidence for hypothesis 5.5 thus reads: «Military professionals in general are subject to economic, socio-emotional, and ideological monopsony, whereas civilian employees are subject to socio-emotional, ideological, but not economic monopsony.»

This, however, is just a generalization across each subsample; of course, substantial individual variation exists. Nevertheless, it may contribute to the inner-Armed Forces debate, if not only economic,

but socio-emotional and ideological aspects of the *monopolberuf* are considered as well, and, if it is acknowledged that this is likely to happen not only to military professionals, but also to civilian employees. The consequences for the military are elaborated in chapter 5.5.4.

To sum up, the study at hand contributes to the literature in six ways: First, I have conceptually related two well-known Organizational Behavior constructs, namely the psychological contract in three layers (Thompson & Bunderson, 2003; Rousseau, 1990) and organizational commitment in the three-component model (N. J. Allen & Meyer, 1990; Kanter, 1968). Despite broad empirical research, there was a lack of theory about the nature of this relationship (Wayne et al., 2009). Theoretically, I corroborated the suggested relation in three ways: by referring to the three influence types (Kelman, 1958; Kanter, 1968), by referring to the motivational bases of reciprocity (Greenberg, 1980; Meyer & Parfyonova, 2010), and by referring to the three organizational types derived from social exchange theory (Graham & Organ, 1993; Blau, 1964). This threefold substantiation fulfills the demand for «additional theorizing» with regard to the relationship between the psychological contract and organizational commitment (Wayne et al., 2009, p. 273).

Second, the application of organizational commitment to three distinct subsamples of the Swiss Armed Forces, and of vocational commitment to two subsamples, buttresses «micro generalizability» of the commitment construct (Jaros, 2007, p. 16). The construct was validated – with both organizational and vocational focus – for military professionals, representing a profession under idiosyncratic conditions (Leonhard & Biehl, 2012). It was validated as well for civilian employees of the Department of Defense, which represents one of the largest shares of Swiss Federal civil servants. By means of an organizational focus, the construct was additionally validated for senior active reservists, who represent a particular subsample without wage-relation, comparable to volunteers in other sectors. In the meantime, these applications help «bring [...] military organizational commitment research into the mainstream» (Gade, 2003, p. 164).

Third, I added empirical evidence to the theoretical argument about the relation between psychological contracts and organizational commitment. Structural equation models revealed that the three layers of psychological contract effectively correspond to the three components of organizational commitment. In doing this, substantial cross-relations occurred. The pattern of these relations may be interpreted as a *hierarchical structure*; the corresponding proposition is presented in the following chapter 5.5.2.

Fourth, I corroborate discriminant validity of OC_{affe} and OC_{norm} (Jaros, 2007; Gade, 2003). I replicate previous findings (Meyer et al., 2002) of high correlations between the affective an the normative component, but confirm the construct validity (Hair et al., 2010). The finding that OC_{affe} and OC_{norm} differ in levels and underlying mechanics for military professionals and senior active reservists adds face-validity to the difference between affective and normative components of commitment.

Fifth, I relate vocational commitment to the psychological contract for both military professionals and civilian employees. For military professionals, vocational commitment is related to the psychological contract as much as organizational commitment is. This adds a new view of the well-known

amalgamation of organization and vocation for military professionals (Wachtler, 1986). Although it was not expected, the same blending was found for civilian employees at the affective and the normative level. Comparison of these differences adds a differentiated view of the military profession *sui generis* (Apelt, 2006; Leonhard & Biehl, 2012; Downes, 1985) and their civilian colleagues (P. Klein, 2006). At an attitudinal level, the military profession seems inseparable indeed from the armed forces as an institution; however, this is not really idiosyncratic, given that civilian employees show comparable attitudinal bounds in non-economic layers.

Sixth, relating to this comparison of the vocational commitment/psychological contract relation to the organizational commitment/psychological contract relation both for military professionals and civilian employees, I provide a new perspective on the *monopolberuf* debate, introducing the notion of *cognitive monopsony*. I argue that only military professionals encounter monopsonistic labor conditions in the canonical, that is economic sense. However, both military professionals and civilian employees may perceive attitudinal states that are best described as affective or normative monopsony.

Given that the relation of the organizational commitment construct to the psychological contract construct (according to proposition 5.1) is the core of this chapter, this merits further examination. The following chapter derives the one contribution that has not been developed so far: the hierarchy proposition.

5.5.2 Relations to the psychological contract

On closer examination, the $OC - F$ model from figure 5.3 suggests an interpretation beyond that of proposition 5.1. I denote this interpretation as

> **Proposition 5.3: (The hierarchy proposition)**
> The layers of the psychological contract and the components of organizational commitment form a hierarchy of dimensions, with the transactional contract and continuance commitment building the most inferior dimension, the relational contract and affective commitment forming the next superior dimension, and the ideational contract and normative commitment representing the most superior dimension.

The argument for this strong proposition are given subsequently.

First, there seems to be a certain *order*. Presuming that the relational layer lies *between* the transactional and the ideational layer, correlations between adjacent dimensions are significantly[71] stronger than between non-adjacent dimensions:

$$\begin{aligned} r_{F_{\text{ideat}} \leftrightarrow OC_{\text{affe}}} &> r_{F_{\text{ideat}} \leftrightarrow OC_{\text{cont}}} && p < .01\,, \\ r_{F_{\text{trans}} \leftrightarrow OC_{\text{affe}}} &> r_{F_{\text{trans}} \leftrightarrow OC_{\text{norm}}} && p < .01\,. \end{aligned} \tag{5.4}$$

71 Significance tests performed based bootstrapping ($B = 3\,000$) with bias-corrected (Efron & Tibshirani, 1993) confidence intervals and Zou's (2007) procedure for overlapping correlations.

Second, there seems to be an inherent *direction*. Assuming that the exchange of economic currency corresponds to the most *inferior*[72] layer of psychological contracts, socio-emotional exchange represents a *more* and ideological exchange the most *superior* dimension, and taking for granted causality from the psychological contract to organizational commitment (Macneil, 1985), this allows for a separation between *upward* and *downward* relationships. This interpretation allows for the striking observation that each upward relationship is significantly[73] stronger than the mirroring downward relationship:

$$\begin{aligned} r_{F_{\text{trans}} \leftrightarrow OC_{\text{affe}}} &> r_{F_{\text{relat}} \leftrightarrow OC_{\text{cont}}} && p < .001\,, \\ r_{F_{\text{relat}} \leftrightarrow OC_{\text{norm}}} &> r_{F_{\text{ideat}} \leftrightarrow OC_{\text{affe}}} && p < .001\,, \\ r_{F_{\text{ideat}} \leftrightarrow OC_{\text{cont}}} &> r_{F_{\text{trans}} \leftrightarrow OC_{\text{norm}}} && p < .05\,. \end{aligned} \tag{5.5}$$

Here, still covariances ($\leftrightarrow$) and not paths ($\rightarrow$) are denoted, because the numbers refer to the covariance analysis performed, and directional models yet remain to be tested. An illustration of the relations can be found in figure 5.8. Psychological contract fulfillment is more likely to be an antecedent of organizational commitment than vice-versa (Macneil, 1985). The hierarchy proposition 5.3 supports this causality conceptually. However, it does not replace the rigorous testing of causality. Rather, it strongly emphasizes the need for such further studies. Taken together, hierarchy proposition 5.3 and causality direction suggest the following interpretation: each *F* layer provides a base for the equal and superior components of *OC*, but in contrast, *F* layers do not substantially foster inferior *OC* components.

Given this interpretation, three caveats are needed. First, *superior* does not necessarily mean *better* in an evaluative sense. In particular, affective commitment has in general stronger desirable outcomes than normative commitment, as explained in chapters 5.2.2 and 5.2.3.

Second, the hierarchy reminds us in some ways of Maslow's (1943) hierarchy of needs. However, for decades we have known that while it remains one of the most widespread motivation theories, the fame of Maslow's pyramid is inversely proportional to the empirical evidence for it (e. g., Wahba & Bridwell, 1976). This, however, does not speak against the proposed hierarchy of psychological contract *layers* and the hierarchy of organizational commitment *components*; however, caution is advised when relating it to Maslow's (1943) deceptive theory.

Third, it has to be acknowledged again, that due to the cross-sectional design of the study, no causal interference may be derived. Therefore, the model has only investigated covariances, and indicated relationships, and not directions. Thus, further studies are needed not only to test the hierarchy proposition 5.3, but also the assumed causal relationship between the psychological contract and organizational commitment, which is crucial to this proposition. If – contrary to the above suggestions – organizational commitment were found to be an antecedent of the psychological contract, not only the path directions, but also the meanings of upward and downward relations would change.

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72 This judgmental terminology is introduced deliberately. The more neutral wording pair of «*low* or *high* layers and components» could lead to confusion with the magnitude or size of a layer or component. However, *superior* is not a synonym for *better*.

73 Again, bootstrapping ($B = 3\,000$) was used to generate bias-corrected (Efron & Tibshirani, 1993) confidence intervals, but in this case, Zou's (2007) procedure for non-overlapping dependent correlations was appropriate.

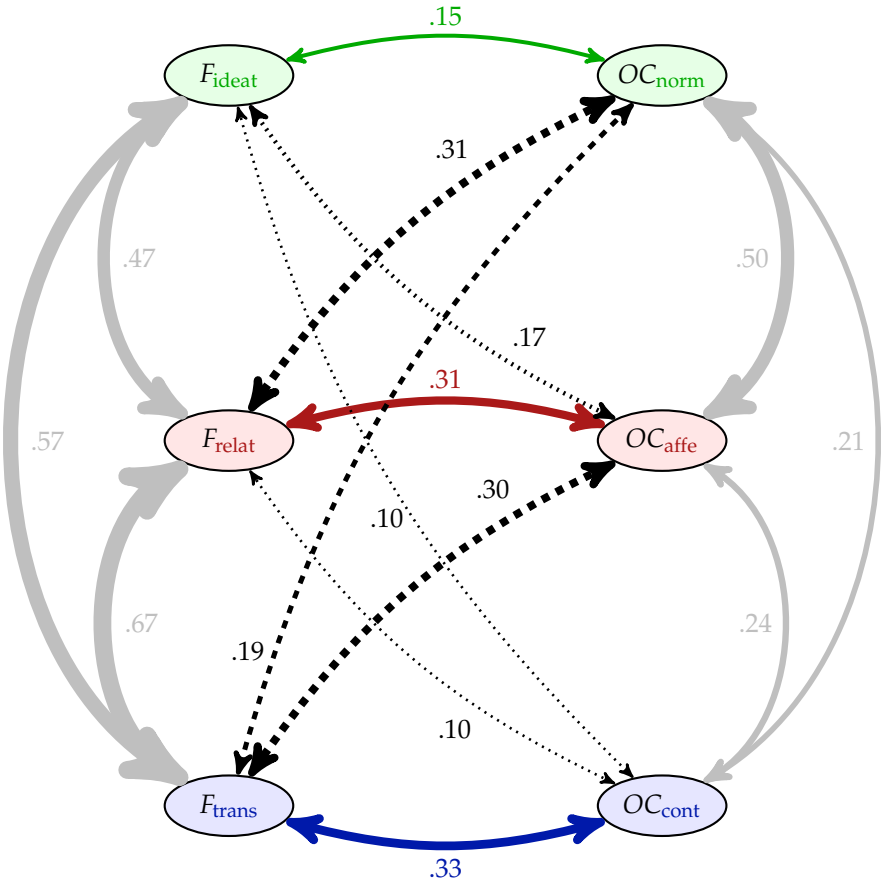

Figure 5.8: A simplified hierarchical representation of the relationships between the psychological contract and organizational commitment. Observed variables and error terms not displayed. Suggested *upward* relationships are dashed, suggested *downward* relationships are dotted. Line thickness is proportional to correlation, with $r = .01 \propto \frac{1}{10}$pt.

The synthesis of the hierarchy proposition 5.3 and the causality assumption only concerns cross relationships, that is those between different dimensions. However, the main relations between layers and components of equal dimensions deserve attention, too. Strikingly, the covariance between the ideational layer and the normative component is the weakest of all, not significantly different in size from the downward relations, and even weaker than some of the upward relations. The hierarchy proposition 5.3 provides an interpretation for the low covariance $r_{F_{\text{ideat}} \leftrightarrow OC_{\text{norm}}}$. If inferior contract layers have already contributed to the base of strong normative commitment, the residual impact of the ideational contract is automatically reduced. However, there is no theoretical base for this reasoning. Further, if the residual argument was to hold, it should at least apply for the inferior dimension pair, as well. But there is no such evidence, given that $r_{F_{\text{relat}} \leftrightarrow OC_{\text{affe}}}$ is not significantly greater than $r_{F_{\text{trans}} \leftrightarrow OC_{\text{cont}}}$. Thus, although the above reasoning is tempting, I suggest another explanation. However, this explanation potentially guides the way to further developments of the normative measurement, which has been repeatedly claimed (e.g, Meyer & Parfyonova, 2010; Jaros, 2007; Solinger et al., 2008).

Taking a closer look, there is considerable conceptual difference between ideational contracts and normative commitment, at least more than in other dimensions. First, the beneficiary of the exchange is different in both constructs.The beneficiary of the ideational contract is «society, some segment thereof, or an intangible principle» (Thompson & Bunderson, 2003, p. 575). In contrast, according to definition 5.1, commitment serves to fulfill the interests of the individual. They do not necessarily contradict each other – it may very likely be that a contribution to a (segment of) society or to principles was in the very interest of the individual – but conceptually, the normative component is more distant from the ideational layer than the affective or continuance components are from the respective layers. There, the beneficiary of the relational contract is «the self and the organizational community» (p. 575) or, in the case of the transactional contract, only the self (Thompson & Bunderson, 2003).

The aforementioned distance between ideational fulfillment and normative commitment may be treated in three different ways: first, it may be considered as sustainable or even desirable. In this case, no change in constructs is needed. This *status quo*, however, does not advance theoretical reasoning behind the two constructs, nor does it address the known measurement issues of normative commitment.

Second, the ideational layer could be redefined to align the layer with the continuance component of commitment. However, the ideational psychological contract had «excellent psychometric characteristics in terms of reliability and factor structure» (Vantilborgh et al., 2014, p. 222) ever since its introduction by Bingham (2005). Thus, such a move lacks motivation.

Third, convergence may be obtained by refining normative commitment. Although this component is far more widely recognized than the ideational contract layer, such a refinement is likely to be valuable in and of itself, given the well-discussed (Meyer et al., 2008; Meyer & Parfyonova, 2010; Meyer et al., 2002; Gade, 2003) issues of the normative component of commitment. Such a refinement would likely reduce the higher inner-construct correlation with the affective component. In this light, further development is desirable, and consequently is suggested in chapter 5.5.3.

For the sake of completeness, the constraints in equations (5.4) and (5.5) were tested for the vocational commitment-psychological contract relationship as well. The constraints hold, at least as well as, or even better than in the case of organizational commitment. This suggests that the hierarchy proposition 5.3 may even be expanded to other commitment foci. However, caution is advised, because the for other than organizational foci, the focus of commitment here may be more distant to the beneficiary of the psychological contract.

5.5.3 Limitations and the future

To start, I present four rather specific limitations including chances for further research, before turning to two more profound limitations of the study: the nature of normative commitment, and the cross-sectional design of the study. To close, I suggest a complementary view of organizational commitment for further studies, inspired by the conceptualization of psychological contracts.

As a first limitation, the high means for OC_{affe} and VC_{affe} cause substantial non-normality in the affective components of both constructs. The respective means are even higher than in the original COBB scale, where affective components were already above-average (Felfe et al., 2006). Given that rewording (e. g., changing OC_{PROUD} «I am proud to be. . .» to «I am very proud to be. . .») hampers comparability with other studies, and given that transformations are not appropriate in view of subsample-specific standardized moments (see chapter 5.4.1), changing to a 7-point- instead of a 5-point Likert scale would be a reasonable remedy to reduce normality. This may be advisable, because prognostic values may suffer from non-normality (Tabachnick & Fidell, 2013, p. 113).

A second measurement issue is that in general, all factors would have profited from more items. Figure 5.3 shows that organizational commitment items had to be reduced to three per factor to obtain an acceptable model fit and to remove validity concerns. In general, more items would have increased the chance of getting a suitable set with more than 3 items per factor. The low number of items was a compromise due to the broad setting of the survey (see chapter 5.3.1), but in a follow-up study, a reduction to more essential constructs would permit a higher number of items per factor.

The third issue is the lack of any measurement of monopsony in the canonical sense. To foster the present interpretation of attitudinal monopsony, measuring traditional monopsony seems indispensable. Conducting natural experiments to measure wage elasticities (e. g., Staiger, Spetz, & Phibbs, 2008) does not seem feasible in the present case; an alternative would be to measure vocational specificity (Geel, Mure, & Backes-Gellner, 2011; Lazear, 2009; G. S. Becker, 1962) as an instrument for monopsony. It would then be possible to investigate how vocational specificity (as an instrument for canonical monopsony, Manning, 2003) corresponds to the attitudinal monopsony suggested in the present study.

The fourth measurement issue concerns continuance commitment. In OC_{cont}, it is a general challenge to establish scores that are suitable for less, or non-economically bound individuals, such as senior active reservists in the Swiss Armed Forces. The CC:lowAlt item had to be deleted; thus three CC:HiSac items remained. CC:HiSac better reflects the genuine meaning of continuance commitment (Meyer et al., 2002); nevertheless, a more thorough pre-study would have likely increased the choice of (existing)

variables, to include also CC:lowAlt items. The present finding is particularly surprising, because Dawley, Stephens, and Stephens' (2005) study among $n = 616$ volunteers in U. S. chambers of commerce suggested and found that CC:lowAlt, but not CC:HiSac contributes to continuance commitment of volunteers. This apparent contradiction deserves further attention, which would be possible with the inclusion of more context-specific items, for instance «I have invested too much in my military network to consider leaving it at this moment».

The fifth measurement issue concerns normative commitment and precedes the following, more fundamental construct-related limitation of normative commitment. Regarding the pure measurement issue, VC_{DISAP} was most problematic; yet this item already cross-loaded in the original COBB scale (Felfe et al., 2006). A more thorough measurement of normative commitment would also allow for more rigorous testing of the assumed normative, or moral stability of military professionals, which has often been suggested, but never empirically corroborated (Ficarrotta, 1997).

As a more fundamental limitation, normative commitment carries with it more than just a measurement issue. The finding that the main relationship $r_{F_{\text{ideat}} \leftrightarrow OC_{\text{norm}}}$ was substantially lower than the other main relationships, that is $r_{F_{\text{trans}} \leftrightarrow OC_{\text{cont}}}$ and $r_{F_{\text{relat}} \leftrightarrow OC_{\text{affe}}}$, triggers this concern. At a closer look, this finding may guide the way to the long-called-for refinement of the OC_{norm} construct. It is a commonplace in Organizational Behavior research that normative commitment lacks discriminant validity (e. g., N. J. Allen & Meyer, 1996; Meyer et al., 2002) and it is therefore often omitted (e. g., Gade, 2003). In the contributions chapter 5.5.1, I argued that the present study corroborates the uniqueness of normative commitment, when compared to affective commitment. This contribution does not exclude a refinement of the normative component. However, I see at least three perspectives of how the central proposition 5.1 could be advanced. I therefore go into detail regarding the *profile* perspective, the *attitudinal* perspective, and the *converging* perspective in the next three paragraphs.

The *profile* perspective refers to the profile approach, stating that not the very components themselves, but rather their combination are relevant to the eventual outcomes (Meyer & Herscovitch, 2001; Wasti, 2005). The profile approach offers an inspiration to research on the three layers of psychological contracts (Thompson & Bunderson, 2003), in that contract profiles (rather than only layers) may be investigated. However, some theoretically conceivable profiles, such as «low CC – low AC – high NC», have not been found empirically (Wasti, 2005). If the same were to be found for psychological contract, this would likely corroborate the relationship between both constructs. From this perspective, the validity issue could be resolved following Meyer and Parfyonova (2010); Gellatly et al. (2006), who suggested that normative commitment may be read either as a *moral imperative*, when combined with affective commitment, or as *indebted obligations*, when paired with continuance commitment. If these components could be reduced to measurable, separable components, this would likely parcel out the overlapping contents of normative commitment.

However, the profile approach does not solve the issue at the component level, in contrast to which I denote the *attitudinal* perspective. Solinger et al. (2008) linked the TCM to Eagly and Chaiken's (1993) composite attitude-behavior model and proposed that «normative commitment could be interpreted as

the combination of considering normative outcomes (in terms of the reciprocity norm) and self-identity outcomes of behavior» (p. 73), two different factors of Eagly and Chaiken's (1993) model. Analyzing OC_{norm} items within this framework reveals a limitation of the scale. Some items, such as OC_{OBLIG}, address the reciprocity norm. Other items, such as OC_{NOTRI} and OC_{GUILT}, refer to more genuine aspects of duty or loyalty (Solinger et al., 2008, p. 72), in correspondence with Eagly and Chaiken (1993). However, neither of the items used in the present study refers to the salient beneficiary of the ideational contract. This reduction, however, is not essential to the organizational commitment concept. It is perfectly conceivable that the reciprocity norm refers to an exchange between the individual and the organization, but the exchange itself redounds to the advantage of a third party, such as the country, or a moral principle. Equally, self-identity may not only refer to generic self-concepts such as being honest or trustworthy, but to more specific concepts – in the present sample, literally «the good soldier» (Organ, 1988). This would not only bring normative organizational commitment closer to transactional psychological contracts, but, if reciprocity and self-identity were to be expanded into an organization-specific meaning, it would also satisfy Solinger et al.'s (2008) critique that normative commitment misses the focus of the organization.

Alternatively, normative commitment may be altered according to other established theories, which I call the *converging* perspective. For instance, González and Guillén (2008) suggested expanding normative commitment «to a wider tripartite approach that would consider not only moral ‹norms›, but also, moral ‹goods› and ‹virtues›» (p. 410). The authors came to this conclusion relating the three commitment components to Aristotle's (350 B.C./2011) useful, pleasant, and moral goods (González & Guillén, 2008, p. 408). I come back to this suggestion in chapter 7.3.3, but provide an analogue approach which refers to the psychological contract. Actually, the very finding of low covariance between normative commitment and ideational contracts may be taken as an argument in itself to *converge* these constructs. Given the theoretical foundation of proposition 5.1, there is an argument for altering normative commitment, so that it includes commitment towards the organization, but motivated by a beneficiary other than the organization, in the sense of Thompson and Bunderson (2003). Indeed, it would not contradict the logic of the commitment construct, if an individual felt morally committed to an organization, not for the sake of the organization, but for «society, some segment thereof, or an intangible principle» (p. 575). This shift in the focus of normative commitment would likely improve discriminant validity of normative and affective commitment. The tool proposed in appendix B.1 may be helpful to chose items suitable to such a shift.

The other fundamental limitation is the cross-sectional nature of the present study. Only a longitudinal study would allow for testing suggested causal relationships, which is also indispensable to the hierarchy proposition 5.3. Beyond the causality and hierarchy assumptions, such a longitudinal study would offer a vast opportunity of important research questions, with regard to the stability of both psychological contracts and organizational commitment, the stability of the relationships between them, and also with regard to how changes in psychological contract fulfillment may induce commitment changes. In addition, it would offer insights into how contracts and commitment change when an

individual changes his position, for instance a military professional who becomes a civilian employee. Finally, however, there is a unique opportunity in the present sample. All potential military professionals are senior active reservists at some time point before applying for full-fledged employment. Thus, the specific context would even allow to measurement of psychological contracts and organizational commitment comparatively, *before* and after employment. The present study provides an optimal starting point for such a challenge.

To close this chapter, I add yet another approach to organizational commitment, although one not following directly from the present study. Just as the psychological contract has been developed from a contract that was, in the beginning, either under-fulfilled or fulfilled, research profited greatly from the notion that it could be also *over*-fulfilled. Such an expansion of the dimensions beyond the usual interval could be considered for organizational commitment as well. In his classic, Etzioni (1964, p. 9) proposed a continuum from positive to negative *involvement*, referring to the positive as *commitment* and to the negative as *alienation*. In this light and with proper scales yet to be developed, new interpretations would present themselves, for example with continuance commitment of senior active reservists taking the form of a economic alienation or with employees refusing the normative commitment – especially if specified in the attitudinal or converging perspective – and would show ideological alienation instead. However, this is a story for another book; yet it shows how much still remains open in organizational commitment research.

5.5.4 Practical implications and conclusion

The last subsection of this chapter contains both specific implications for the Swiss Armed Forces, and general implications, potentially valuable for organizations in the private and public sector, both nonprofit and profit-oriented, employee- and volunteer-based, military and civilian.

Given the evidence summarized in chapter 5.5.1, the central proposition 5.1 may be the most fruitful suggestion not only for researchers, but also for practitioners. Further, the hierarchy proposition 5.3 suggests additional insights to the practitioner. The subsequent propositions rely on this interpretation, mainly because it simplifies discussion of the relationships. Even if later research were to falsify proposition 5.3, the underlying covariances would still hold for the present sample. To state the suggested implications more pithily, each paragraph starts with a *short statement*. These statements may, at time, go beyond what is empirically bulletproof. I formulate them to capture the essence of the propositions, at the risk of some practical oversimplification. I start with six general implications regarding organizational commitment; to simplify, I use the common abbreviations CC, AC, and NC.

All layers of psychological contracts are relevant to organizational commitment. Further, compensation of under-fulfilled contracts by superior contracts is unlikely to happen: If a person's perceived promises in economic terms are not fulfilled, it is unlikely that socio-emotional or ideological contributions compensate for this grievance. On the other hand, the fulfillment of inferior contracts seems to be a precondition for superior forms of commitment, in the sense of «food first, then morality» (Brecht,

1928).[74] Beyond doubt, the superior contracts are important, too, but their fulfillment does not satisfy promises elicited within inferior contracts.

Underfulfillment yields collateral damage. An isolated view of the relationship between transactional contracts and CC would suggest that transactional overfulfillment should be avoided by all means, because it fosters the largely detrimental CC. However, transactional fulfillment not only impacts CC: the upward relationship towards AC is as strong, and towards NC almost as strong. To provide a basis for a healthy relationship, the transactional contract should not dominate, because of its mostly detrimental outcomes (Zhao et al., 2007; Meyer et al., 2002). Yet underfulfillment is by no means an alternative, given the potential collateral damage on AC and NC implied by transactional underfulfillment.

Relational underfulfillment is most detrimental. In particular, it is detrimental to the individual *and* to the organization. Besides its substantial impact on AC, known to have most desirable outcomes for both the individual and the organization (Meyer, 2009), relational fulfillment is as relevant to NC. Profiles combining high NC and high AC are the most advantageous (Meyer & Parfyonova, 2010); thus expected synergetic effects further emphasize the importance of the relational contract. In contrast, the model also implies that relational underfulfillment reduces loyalty and a sense of duty; in plain terms, people tend to «take it personally».

There is no reliance on compensation. With respect to the weak downward impact, organizations should not rely on the hope that fulfillment or overfulfillment of the relational contract will compensate for deficits in economic exchange. Although identification, feelings of belongingness and appreciations are important, socio-emotional contributions cannot compensate for omitted fringe benefits, missed bonuses, or withdrawn pay rises, once these economic contributions have been perceived as (implicit or explicit) promises.

Don't overestimate ideational contracts. In terms of the ideational contract, it seems attractive to build an organization on ideologically motivated individuals (Thompson & Bunderson, 2003), especially in the volunteers sector (Vantilborgh et al., 2014). However, although ideological exchange may contribute to all components of organizational commitment, its contribution is minor in comparison to socio-emotional and economic exchanges. This seems to be true even for normative commitment, which relies more heavily on relational than on ideational fulfillment.

Volunteers – and reservists – have transactional contracts, too. The first specific finding is that transactional psychological contracts apply to senior active reservists, as well. For these volunteers, transactional fulfillment is linked in the same way to CC as for employees. At first glance, this seems counter-intuitive. Yet economic exchange was found to be *less* important to senior active reservists, which does not imply that it was *not* important to them. Thus, rather than excluding transactional contracts in the study and treatment of volunteers (Vantilborgh et al., 2014), the inclusive approach of Dawley et al. (2005), emphasizing specificities of volunteers, is deemed appropriate. Beyond money, other elements are part of transactional exchanges, such as distinct responsibilities and adequate training. However, if

74 A less literal translation of the infamous «Erst kommt das Fressen, dann die Moral» would be «a hungry man has no conscience».

the transactional contract as a whole is not satisfied, the individual may consider departure despite otherwise fulfilled contracts, which is also the case for volunteers.

With regard to vocational commitment, I add two implications, of which the first seems rather sample-specific; however, the reasoning may be transposed to other organizations. Given that vocational commitment has desirable outcomes beyond those of organizational commitment (Stinglhamber et al., 2002), this is worth the effort.

The monopolberuf *goes beyond economics.* The second specific finding refers to the discussion about the «monopolberuf», which has a long-standing history in the Swiss Armed Forces. However, no clear definition guides the way in the internal discussion. Although validation of monopsony in a canonical sense was beyond the scope of the present dissertation, at least some evidence of *cognitive monopsony* was presented. With respect to vocational and organizational commitment, the vocation does not seem to be clearly separable from the organization. This is a start and opens the door for further investigation of this particularity. This finding has been anticipated in the discussion of the effect of employability on turnover intentions in chapter 4.5.4. Yet, awareness should be given the fact that for military professionals, this cognitive monopsony happens at economic, socio-emotional, and ideological levels. In addition to this, awareness should be extended to the fact that for socio-emotional and ideological exchanges, this holds true even for civilian employees. Manning (2003) suggests monopsony is not restricted to exotic labor markets; rather, it may be a standard model in light of market frictions and the wage setting power of employers. Thus not only armed forces and public administrations are affected by monopsony considerations.

Job branding may be a unique selling proposition. The particular importance of vocational commitment provides opportunities: the Swiss Armed Forces may not only maintain employer branding, but also *vocation branding*, which may rather be referred to as job branding. Interestingly, the new personnel marketing campaign introduced in 2015 focuses strongly on specific career tracks. For instance, flyers bear titles like «my career in uniform» or «vocations in the Swiss Armed Forces». The next chapter 6 will elaborate different work orientations and thereby deepen these recommendations.

To conclude, the relationship revealed between psychological contract layers and organizational commitment components permits organizations both in the public and private sector to systematically influence commitment of their employees and volunteers. The psychological contract offers leverage in both adjusting levels of perceived promises and the respective fulfillment. If organizations learn how to alter the contents of contracts, individualize them, where advisable, or change the corresponding mental model in individuals, if they learn how to teach individuals to deliberately form their own psychological contract, then organizations know how to manage psychological contracts. Moreover, if organizations learn about the promises individuals perceive, and how the organization may deliver on these promises, then organizations have a tool to shape organizational commitment through management of the psychological contract.

Chapter 6

Four Types of Work Orientations

> Those who see the military profession as a calling or a unique profession are outnumbered by a greater concentration of individuals for whom the military is just another job. ... The reserve system, with its unpredictable career consequences, fosters a careerist orientation.
>
> *The professional soldier: A social and political portrait* (Janowitz, 1961)

6.1 Introduction

Debates about different work orientations are prevalent among practitioners, as quotations of study participants[75] suggest (see boxes 6.1 to 6.4). Contrastingly, Organizational Behavior research has focussed more on work identities, emphasizing structural or developmental aspects (Skorikov & Vondracek, 2011). Yet work orientations as contents of identity have mostly been neglected (ibid.).

One exception is the typology introduced by Wrzesniewski, McCauley, Rozin, and Schwartz (1997). Using a sample of $n = 196$ U.S. employees from various occupations, the authors show that people see their work either as a Job, a Career, or a Calling. This *work orientation triad* (henceforth denoted as «WO3») found some confirmation in the literature, for instance in an international online study about zest, involving $n = 9\,803$ employees (Peterson, Park, Hall, & Seligman, 2009). However, most research is focussed exclusively on Calling (Rosso, Dekas, & Wrzesniewski, 2010; Duffy & Dik, 2013; Harzer & Ruch, 2012; Dik et al., 2012). Nonetheless, WO3 may be regarded as the traditional typology (Skorikov & Vondracek, 2011, p. 696) and forms the conceptual core of chapter 6.

Beyond the prevalence among practitioners and the understudied field in general, an untested proposition regarding theoretical cousins of the psychological contract (Thompson & Bunderson, 2003) adds motivation for us to study work orientations. Chapter 5 related continuance, affective, and normative components of organizational commitment (N. J. Allen & Meyer, 1990) to the transactional, relational, and ideational layers of the psychological contract (Thompson & Bunderson, 2003; Rousseau, 1990). Similarly, Thompson and Bunderson suggest that Job, Career, and Calling correspond to the three psychological contract layers, respectively. Across all layers, the psychological contract is reducible to promised inducements and fulfillment (Schurer Lambert et al., 2003, see chapter 4). Organizational commitment relates to fulfillment (chapter 5). In contrast, work orientations are associated with promised inducements, as chapter 6 suggests.

Box 6.1: Survey participants reflecting the Job orientation

«Ich habe bis jetzt nur Nachteile erlitten, weil ich im Militär weitergemacht habe. (…) Ich mache weil ich muss und weil ich muss stelle ich mich quer!!!» [no. 3457]

«Vor 26 Jahren, als ich mich für diesen Arbeitgeber entschieden habe war ich noch Stolz diesen Job zu machen. Heute ist das anders wir haben viel verloren (…)» [no. 1353]

Wrzesniewski et al.'s (1997) typology lacks a theoretical framework, but builds upon a proposition from *Habits of the Heart* (Bellah et al., 1985), a sociological study about (white) middle-class Americans. These roots give rise to a string of issues. First, no predefined theory affirms whether this triad is *complete*. Second, *generalizability* is challenged, regarding the present sample of the Swiss Armed Forces, and beyond. Third, the labels bear an inherent *normative* connotation. Fourth, Wrzesniewski et al.'s single-item scales imply a *measurement* issue. Fifth, the lack of multi-item scales restricts feasible *methods*,

75 and, frankly, the author's personal experience in the Swiss Armed Forces

Box 6.2: Survey participants reflecting the Career orientation

«Eine wichtige Voraussetzung dafür, dass ich mein Engagement bei der Schweizer Armee mittel- und langfristig fortsetze, ist eine klare Verbesserung der Aufstiegsmöglichkeiten für zivile Angestellte.» [no. 591]

«(…) nous ressentons le côté carriériste qui est un élément de plus en plus pesant au sein de notre armée. » [no. 3399]

and Wrzesniewski et al.'s (1997) «categorization» method (p. 26) suffers from serious drawbacks (Dik et al., 2012). The next five paragraphs address these issues, providing an overview of the challenges of chapter 6.

Regarding *completeness*, alternative typologies suggest an expansion of the WO3. Moskos (1977a) proposed a set of «alternative conception[s] of military social organization», which he labeled Occupation, Profession, and Calling (p. 23). The parallels between Wrzesniewski et al.'s orientations and Moskos' conceptions are striking. Comparing both sources reveals that Moskos' Occupation and Wrzesniewski et al.'s Job represent the same orientation; also, their understanding of Calling is sufficiently similar to forgo further differentiation. In contrast, comparison of the Profession and the Career orientations suggests that these types are essentially different. Consequently, Profession as a fourth type expands WO3, to cover all orientations expected in the present sample. I denote the derived *work orientation tetrad* as «WO4».

At first glance, adding a Profession orientation based on the Armed Forces and Society literature further jeopardizes *generalizability*. However, an «important article» (Jackson, 1970, p. 8) from the (civilian) Sociology of Professions (Pfadenhauer & Sander, 2010) produces a remedy both for the completeness and the generalizability issue. In «The Professionalization of Everyone?», Wilensky (1964) distinguishes three *role orientations*, namely the professional service expert, the Careerist, and the Missionary. As the color code suggests, Wilensky's triad overlaps both with Moskos' triad and WO3. These overlaps corroborate the necessity and the sufficiency of the WO4 and substantiate generalizability among civilians.

The *normative* connotation becomes apparent in everyday language, but also in civilian and military literature. Bellah et al. (1985) rhapsodize about «a Calling [that] links a person to the larger community, a whole in which the Calling of each is a contribution to the good of all», culminating in a reference to the «Episcopal Book of Common Prayer» (p. 66). Moskos (1977a) suggests «therapeutic proposals» to «the decline of the Calling […] and the ascendancy of the occupational model» (pp. 23–25). Similarly, the label «Profession» is reserved to privileged groups, prompting other groups to argue that they merit this

Box 6.3: Survey participants reflecting the Calling orientation

«Purtroppo a 52 anni, nel 2016 verrò congedato, si chiuderà una pagina importante e gratificante della mia vita. Credo che la vita militare mi mancherà.» [no. 794]

«Ich schätze mich als sehr loyaler Mitarbeiter ein welcher seine Arbeit mit Stolz verrichtet. Bei den jüngeren Berufsmilitär fehlt mir die Überzeugung bzw. die Berufung für diesen Job (…)» [no. 232]

Box 6.4: Survey participants reflecting the Profession orientation

« de plus en plus de hauts gradés oublient ce qu'être INSTRUCTEUR veux dire, que l'instruction de la troupe prime sur toute autre considération. » [no. 1874]

«Wir trainieren um unser Handwerk zu beherrschen und bereiten uns auf einen allfälligen Einsatz vor.» [no. 1166]

distinction, too (Carr-Saunders & Wilson, 1933/1964, p. 3). In contrast, the more neutral terms, such as «Career», «Occupation», or «Job», need little to gain unfavorable connotation – such as in Moskos and Wood's (1988b) book title *The Military, More than Just a Job?* (see also Wrzesniewski, 2002). The normative nature of both military and civilian debates notwithstanding, the chapter at hand takes a descriptive approach.

The *measurement* issue offers two alternatives. Either one stays with Wrzesniewski et al.'s (1997) three one-item scales – one for each work orientation – or one develops a battery of multiple-item scales, possibly building on 18 concurrently measured items, which the authors found to correlate with different orientations. Yet such a scale would not allow for immediate comparison between the original WO3 and the psychological contract, according to Thompson and Bunderson's (2003) proposition. Thus, the present study uses the original one-item scales. However, appendix A.3.2 provides multi-item scales, extended to 4 work orientations, to be validated in further research.

Wrzesniewski et al.'s (1997) categorization *method* limits assessment capacity and implies reliability concerns (Dik et al., 2012, p. 244). Staying with the original single-item scales excludes methods typically used for scale assessment, such as (confirmatory) factor analysis (Tabachnick & Fidell, 2013, chs. 13, 14) or cluster analysis (Greene, 2003, p. 11). However, I suggest a refinement of the categorization technique, which is only suitable here due to the large sample size. In addition, I propose an alternative, based on partial correlations, and compare the findings to those obtained by the refined categorization technique.

These advancements of the work orientation construct allow us not only to test Thompson and Bunderson's (2003) assumption, but also to investigate how work orientations are related to organizational and individual outcomes (see chapter 3.6.3). Further, classic assumptions from Armed Forces and Society, for instance the change from Calling to Occupation (Burrell et al., 2006; Moskos, 1986, 1977b) or differences according to employment status (e.g, military vs. civilian; P. Klein, 2006; Leonhard & Biehl, 2012) and services branches (e. g., Air Force vs. Land Forces; Wood, 1988) can be studied as well. Finally, I investigate the impact of work titles on employee identity (Caldwell, 2002).

In summary, the present chapter 6 entails two research questions. The first takes an Organizational Behavior perspective:

> **Research Question 6.1:** What does a complete typology of work orientations consist of, how is such a typology related to other constructs and theories, in particular to psychological contract theory, and how can such work orientations best be measured?

The second question addresses not only general Organizational Behavior issues, but also specific Armed Forces and Society claims:

> **Research Question 6.2:**
> Depending on their work orientations, how do senior members of the Swiss Armed Forces differ in terms of organizational and individual characteristics? Which outcomes are associated with the respective work orientations, and how are these work orientations affected by job titles?

In answering these questions, chapter 6 contributes to the literature in six ways:

First, I expand Wrzesniewski et al.'s (1997) triad of Job, Career, and Calling orientations (WO3) by the Profession orientation (Moskos, 1977a; Wilensky, 1964) to a work orientation tetrad (WO4). To measure all work orientations included in WO4, I develop the Profession orientation item in the style of Wrzesniewski et al.'s (1997) original single-item scales, drawing from both Sociology of Professions and Military Sociology. Comparing frequencies of WO3 and WO4 in the present sample suggests that the full WO4 is needed to account for the variety of work orientations in the Swiss Armed Forces, and that using WO4 instead of WO3 is possible in non-military samples, too. In addition, I explicitly suggest multiple-item scales, which have yet to be validated in further research.

Second, by relating Job, Career, and Calling orientations to the transactional, relational, and ideational layer of the psychological contract, I provide some support for Thompson and Bunderson's (2003) suggestion of «theoretical cousins» (p. 575). In addition, I relate the Profession orientation to a sub-factor of transactional contracts, designated «transactional-content» in chapter 4.5.1. However, all orientations only account for small to very small amounts of variance in the psychological contract, presumably not enough to justify the psychological contract as a theoretical framework for work orientations. Thus, following the empirical part, I suggest two alternatives to embed work orientations in a more solid framework, namely a taxonomy following Skorikov (2008), and a possible backing by Schein's (1965, 1996) career anchors.

Third, I refine the categorization method to derive more detailed findings, benefiting from the large sample size. In addition, I suggest an alternative method, relying on partial correlations, and suitable for smaller samples. This correlation method, in contrast to Wrzesniewski et al.'s (1997) categorization method, is able to account for relevant confounding factors, such as social desirability, or age.

Fourth, I confirm previous findings (Wrzesniewski et al., 1997; Peterson et al., 2009), stating that the Calling orientation is most and the Job orientation least desirable in outcomes, with the Career orientation taking a mediocre position. Further, I show the Profession orientation to be as beneficial as the Calling orientation, but argue that due to its much larger coverage, it offers greater managerial leverage to develop work orientations. In addition, I provide evidence that senior active reservists with Calling orientations suffer from worse army-life balance, when compared to reservists with other orientations. This does not only contribute to the growing evidence about the downsides of Calling (e. g.,

Dempsey & Sanders, 2010), but points to a permanent challenge for the Swiss Armed Forces: the strain on senior active reservists (e. g., Wüest, 1950; Ernst, 2010; Amiet, 2013).

Fifth, I test predictions from Armed Forces and Society literature, referring to Moskos' (1977b) «I/O model». This widely regarded multi-level concept (Collmer, 2010) states that units, branches, and vocational categories of the armed forces vary between an *institutional* type, oriented at traditional military values, and an *occupational* type, following modern civilian values. Moskos (1977a) suggests these differences lead to different work orientations. However, findings reveal only few heterogeneities in the Swiss Armed Forces, presumably due to the enduring «cold state» of warlessness (Soeters, Winslow, & Weibull, 2006), the militia principle (Haltiner & Hirt, 2000), and postmodern developments (Moskos et al., 2000).

Sixth, I investigate the impact of job titles on work orientations. Taking advantage of the particularity of the Swiss Armed Forces, that is the trilingual nature of the sample, I provide evidence that French-speaking military professionals, whose job titles explicitly refer to the Career, have a significantly higher tendency towards the Career orientation, whereas Italian-speaking military professionals, whose job titles refer to the Profession, tend more often to a Profession orientation – both in comparison to German-speaking military professionals, whose job titles refer to neutral terms. This finding substantiates the importance of job titles for work identities (Caldwell, 2002).

Beyond the scholarly contributions arising from these research questions, I suggest implications both to the practitioner in- and outside the Swiss Armed Forces, namely with respect to the organizational culture and the promoted ideal types of employees or volunteers in the Swiss military.

The rest of chapter 6 is structured as follows. Chapter 6.2 presents the four work orientations to substantiate the necessity and sufficiency of the tetrad. It further establishes the central proposition 6.1 of how work orientations are related to psychological contracts, and derives testable hypotheses regarding outcomes, based on Organizational Behavior and Armed Forces and Society literature. Chapter 6.3 develops the item for the Profession orientation, refines the categorization method, defines the correlation method, and sets up the regression equation needed for the hypothesis regarding army-life balance. Chapter 6.4 presents descriptives, reveals relationships between work orientations and psychological contract layers, explores antecedents and outcomes, and tests hypotheses specific to the Swiss Armed Forces. To close, chapter 6.5 discusses findings, puts a particular focus on the relations to the psychological contract construct, points at limitations and implications for further research, and suggests practical implications.

6.2 The Concept of Work Orientations

6.2.1 Work Orientations as Contents of Work Identity

Work identity[76] is a complex structure of meanings, an internal representation of the vocational self, serving the individual to link motivation and competencies with vocational roles (Skorikov & Vondracek, 2011; Skorikov, 2008). Work identity is not only relevant to the individual's career development (Meijers, 1998), it goes beyond that: work identity constitutes a substantial and integral part of the individual's overall identity (Skorikov & Vondracek, 2011).

The structure and development of work identity have received extensive attention in the literature (Skorikov & Vondracek, 2011). However, research in work orientations as the contents of the work identity is «extremely limited» (Skorikov, 2008, p. 30). Of the few exceptions, Wrzesniewski et al.'s (1997) distinctions Job, Career, and Calling may be considered the traditional typology of work orientations (Skorikov & Vondracek, 2011).

Work orientation types reflect the different meanings individuals attribute to their work (Rosso et al., 2010). The Job orientation represents an instrumental understanding, where work primarily serves as a means to enable life outside work. Contrastingly, the Career orientation implies an interest in advancement, possibly to increase social status, power, or self esteem. Finally, the Calling orientation refers to work as a meaning in itself, a fulfillment beyond financial interests, which is fused with the individual's life (Wrzesniewski et al., 1997). This work orientation triad (WO3) forms the core of the present chapter 6.

Often, individuals do not adhere to a single work orientation type. Wrzesniewski et al. (1997) report that of $n = 196$ study participants, 31% did not rate one specific orientation of the WO3 higher than the other two. Using the WO3, Peterson et al. (2009) find that 22% of $n = 9\,803$ employees were ambivalent in rating work orientations. Thus, the evidence suggests that work orientations constitute ideal types.

Rosso et al. (2010) suggest an individual's work orientation goes beyond his current work, reflecting his belief about work in general. However, it seems likely that an individual attributes different meanings to different work activities. Schein (1990, p. 29) provides the example of an entrepreneur, making a living as a clerk, but dedicating his spare time to the fulfillment of his entrepreneurial ambitions. Similarly, an senior active reservists in the Swiss Armed Forces may have a Calling orientation towards his reservist position, but a Career orientation towards his civil work – or vice versa. Overall, I provide the following

> **Definition 6.1:** A work orientation is an ideal type reflecting the meaning an individual attributes to his work within a given organization.

76 Also referred to as occupational, vocational, professional, or career identity (Skorikov & Vondracek, 2011). To prevent confusion with the terminologies of Wrzesniewski et al. (1997) and Moskos (1977a), and with vocational commitment from chapter 5. I thus use the terms *work* identity and *work* orientation.

The rationale for the WO3 is not theoretically driven (Skorikov & Vondracek, 2011). Instead, Wrzesniewski et al. (1997) derived their typology from a qualitative sociological study, the «forceful and controversial» (Champlin, 1985, p. 10) description of the American white middle-class from the mid-1980s, *Habits of the Heart* (Bellah et al., 1985). Moreover, this study inspired other works, in particular *Battle for Human Nature* (Schwartz, 1986) and *Meanings of Life* (Baumeister, 1991). These books do not provide theoretical frameworks either, but add some insights into the different work orientations.

Bellah et al.'s (1985) original sample raises doubts about completeness and generalizability of the WO3. Doubts regarding completeness are further nourished by the findings Wrzesniewski et al. (1997) report for a subsample of 24 administrative assistants. Of them, as many as 8, that is one third, view their work as a Calling (table 4, p. 30). This is not to say an assistant could not see his work as a Calling; however, the prevalence is rather surprising. Due to missing theory, it cannot be excluded that some participants rated the Calling orientation the highest due to lack of alternative orientations.

Indeed, the Armed Forces and Society literature suggests that there is one alternative orientation beyond those described in *Habits of the Heart* (Bellah et al., 1985). Numerous qualitative (Moskos, 1988; Moskos et al., 2000; Haltiner & Hirt, 2000) and quantitative studies (Stahl, Manley, & McNichols, 1978; Stahl, McNichols, & Manley, 1980, 1981; D. R. Segal, Blair, Lengermann, & Thompson, 1979; D. R. Segal, 1986; Haltiner, 1988; Caforio & Nuciari, 1994) – several of them with more than 10 000 participants – investigated different work orientations in the western armed forces. They are all rooted in one proposition that strongly influenced debates in Armed Forces and Society (Collmer, 2006): Moskos' (1977b) «I/O model».

In the original formulation, the I/O model suggests two ideal types of armed forces, the institutional (I) model and the occupational (O) model (Moskos, 1977b). An institution is morally legitimated, and its members adhere to a Calling orientation (p. 42), similar to Wrzesniewski et al.'s (1997) Calling orientation. In contrast, an occupation is legitimated in economic terms, and its members adhere to an Occupational understanding of their work (p. 43), mirroring Wrzesniewski et al.'s (1997) Job orientation.

The I/O model is a multi-level concept (Collmer, 2010; Moskos & Wood, 1988a, p. 318). At the macro-level, the model is often referred to as the I/O thesis, suggesting that (post-) Cold War armed forces have shifted from an originally institutional to an occupational format (Moskos, 1977b; Moskos & Wood, 1988b). Of note, both Bellah et al. (1985) and Schwartz (1986) bemoan the same shift, but for American society in general. I refer to this analogy in the final discussion of the normative nature of debates both in military and civil sociology. Until that point, I restrict my narrative to the micro-level.

Moskos' (1977b) widely-received paper only suggested two orientations: Calling and Occupation. However, in a less-noted article, Moskos (1977a) provides three «alternative conception[s] of military social organization», designated Occupation, Profession, and Calling (p. 23). The additional type, the Profession orientation, is «legitimized in terms of specialized expertise» (Moskos, 1977a, p. 3), and is not only distinct from the Occupation and Calling orientations, but also dissimilar to Wrzesniewski et al.'s (1997) Career orientation: The Profession orientation often presumes a lifelong career, and comprises other characteristics usually attributed to professions, such as academic training, the importance of peer

groups, and the focus on skills and expertise (e. g., Flexner, 1915/2001; Parsons, 1949/1954; Barber, 1963; Harries-Jenkins, 1970). In contrast, the Career orientation narrowly focusses on advancement and does not attribute any inherent value to the work effectuated (Wrzesniewski et al., 1997; Schwartz, 1986). Thus, to cover all orientations expected in the Swiss Armed Forces, I add Profession to the original work orientation triad (WO3), to create a work orientation tetrad (WO4) instead.

Empirical studies in Armed Forces and Society have almost[77] always omitted one of the three orientations suggested by Moskos (1977a), presumably due to a combination of two facts. On the one hand, Moskos' (1977b) article suggesting the I/O thesis had a powerful impact on Military Sociology (Collmer, 2006, 2010). On the other hand, the status of Profession was crucial to the early debate in Armed Forces and Society (Leonhard & Biehl, 2012; Huntington, 1957; Janowitz, 1961; Van Doorn, 1965). A cross-national study, lead by Caforio and Nuciari (1994),[78] illustrates this concurrence. The authors argue that «the institutional/occupational model has been ‹translated› into a Professional/Occupational typology, according to a well-established theoretical tradition deriving from Van Doorn (1965) which has been followed by many scholars» (p. 33). Thus, a quantitative study, applying the WO4 tetrad in a military sample, is also a primer with regard to Moskos' (1977a) typology.

In light of the Careerist-Calling antagonism Janowitz (1961) found, the occupational model (Moskos, 1977b) may similarly be translated into the Career orientation. Together with Caforio and Nuciari's (1994) translation, this yields an identity important to those hypotheses derived from the Armed Forces and Society literature (see chapter 6.2.5): The broader I/O model by Moskos coarsens the more fine-grained WO4, so that the *institution* model corresponds to the Calling and the Profession orientations, and the *occupation* corresponds to the Job and the Career orientations.

Adding the Profession orientation to Wrzesniewski et al.'s (1997) typology is necessary not only to describe military samples. The body of (civilian) Sociology of Professions (Pfadenhauer & Sander, 2010) describes lawyer, physician and priest as prototypical professions (e. g., Flexner, 1915/2001; Carr-Saunders & Wilson, 1933/1964; Wilensky, 1964), establishing the characteristics scholars of Military Sociology (Huntington, 1957; Janowitz, 1961; Van Doorn, 1965) later used to describe the military profession. Further, any individual may consider his work as a profession (Hughes, 1958; Etzioni, 1964).

Wilensky's (1964) article «The Professionalization of Everyone?» substantiates the claim that the full WO4 is needed to describe work orientations in civilian samples, too. Wilensky (1964) distinguishes three «role orientations», namely the Professional service expert, the Careerist, and the Missionary (p. 151). The Professional service expert refers to the traditional characteristics of professions, such as a focus on skills, a long education, and an orientation within the peer group (p. 151). This matches Moskos' (1977a) Profession orientation. In contrast, the Careerist focusses on advancement and prestige, and orientates himself along the hierarchy (Wilensky, 1964, p. 151). This corresponds to the Career orientation, as defined by Wrzesniewski et al. (1997). Finally, the Missionary bears an ideological motivation and is

77 For an (Argentinian) exception, refer to the recent qualitative study by Soprano (2013).

78 See Caforio (1994b), pp. 31–32 for a list of contributing scholars.

oriented towards «some abstract concept» (Wilensky, 1964, p. 151). This corresponds to the Calling orientation of both Moskos (1977a) and Wrzesniewski et al. (1997).

Wilensky (1964) finds these orientations among lawyers, professors, and engineers, based on $n = 490$ interviews. This choice of sample also suggests why the Job orientation was not apparent; according to (Wrzesniewski et al., 1997), the Job orientation is generally associated with lower vocational and educational levels.

To summarize, the three triadic typologies suggested by Wrzesniewski et al. (1997), Moskos (1977a), and Wilensky (1964) form one tetrad, that is a typology of four different work orientations. Figure 6.1 provides an overview of the combined typologies. The following chapter 6.2.2 substantiates the suggested equivalences and differences.

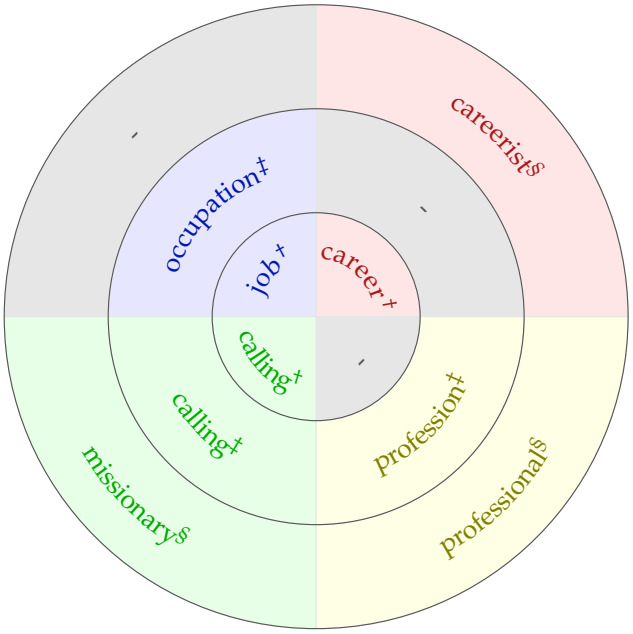

Figure 6.1: The different work orientation typologies in a nutshell. †The inner circle features types of work orientation (Wrzesniewski et al., 1997). ‡The middle ring contains types of conceptions of military organizations (Moskos, 1977a). §The outer ring shows types of role orientations (Wilensky, 1964). The background colors indicate correspondence across typologies. A dash indicates that no according type was given by the authors.

6.2.2 Different Work Orientations

In a nutshell, the combination of different literature streams suggests the existence of four distinct ideal types, as illustrated in figure 6.1. For the WO3, these types are given Wrzesniewski et al. (1997). Yet the fourth description, of the Profession orientation, needs to be derived from the literature (Pfadenhauer & Sander, 2010; Collmer, 2010). The shortcomings of a hermeneutic circle notwithstanding (Shklar, 1986), the four types are given by the following

Definition 6.2: Among work orientations, the following types can be distinguished:

- Individuals with a Job orientation identify themselves with the description of person A as provided by Wrzesniewski et al. (1997).
- Individuals with a Career orientation identify themselves with the description of person B as provided by Wrzesniewski et al. (1997).
- Individuals with a Calling orientation identify themselves with the description of person C as provided by Wrzesniewski et al. (1997).
- Individuals with a Profession orientation identify themselves with the description of a Professional, as found in the literature of Sociology of Professions in general, and of Military Sociology in particular.

Consequently, the next three subsections, presenting Job, Career and Calling orientations, emanate from the single items Wrzesniewski et al. (1997) provide,[79] but the fourth subsection, regarding Profession orientation, resumes the afore-named literature instead. A similar item for the Profession orientation is developed later in chapter 6.3.1.

Subsections further refer to the 18 items Wrzesniewski et al. (1997) included; these items add further insights into the work orientations. Further, I integrate additional sources to embed the different orientations in existing theories, and to prepare the central proposition 6.1 regarding the relation between work orientations and psychological contract (Thompson & Bunderson, 2003).

6.2.2.1 Job. According to definition 6.2, an individual's Job orientation is stronger the more he identifies with person A[80] described in the following paragraph (Wrzesniewski et al., 1997, p. 24):

> Person A works primary to earn enough money to support his life outside of his job. If he was financially secure, he would no longer continue with his current line of work, but would really rather do something else instead. Person A's job is basically a necessity of life, a lot like breathing or sleeping. He often wishes the time would pass more quickly at work. He greatly anticipates weekends and vacations. If person A lived his life over again, he probably would not go into the same line of work. He would not encourage his friends and children to enter his line of work. Person A is very eager to retire.

Job oriented employees are significantly ($p < .05$) more prone to affirm statements like «My primary reason for working is financial – to support my family and lifestyle» ($r = .54$) and reject statements such as «I find my work rewarding» ($r = -.46$) (Wrzesniewski et al., 1997). Thus, the Job orientation corresponds to the *rational-economic man*, «primarily motivated by economic incentives», a passive agent when it comes to manipulation, motivation, and control (Schein, 1965, p. 48). Congruently, the Occupation orientation by Moskos (1977a) follows a purely economic understanding of work (p. 25, emphasis in the original):

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79 The length of the items suggests that these are vignettes, as for instance Dik et al. (2012, p. 243) reads them. However, the approach does not correspond to a vignette study (e. g., Greene, 2003, p. 842). Rather, these items are lengthy and detailed.

80 The original item was introduced «Mr. A works…», and Wrzesniewski et al. (1997) recommended writing «A works…» instead (p. 24). However, Harzer and Ruch (2012) wrote «Person A…» respectively. I adopt this wording for all three languages, because the grammatical gender of «Person» in German and «personne» in French, and «persona» in Italian is always female, which simplifies formulations.

> An *occupation* is legitimated in terms of the marketplace, i. e., prevailing monetary rewards for equivalent competencies. In a modern industrial society, employees usually enjoy some voice in the determination of appropriate salary and work conditions. . . . The occupational model implies that priority inheres in self-interest rather than in the task itself or in the employing organization. . . . Traditionally, the military has sought to avoid the organizational outcomes of the occupational model. . . .

In terms of Thompson and Bunderson (2003), both concepts are driven by the exchange of economic currency, the currency exchanged in transactional psychological contracts. Thus, the Job orientation involves a transactional contract (Thompson & Bunderson, 2003; Rousseau, 1990).

6.2.2.2 Career.

Wrzesniewski et al. (1997) provide the following Career item (p. 24):

> Person B basically enjoys his work, but does not expect to be in his current job five years from now. Instead, he plans to move on to a better, higher level job. He has several goals for his future pertaining to the positions he would eventually like to hold. Sometimes his work seems a waste of time, but he knows that he must do sufficiently well in his current position to move on. Person B can't wait to get a promotion. For him, a promotion means recognition of his good work, and is a sign of his success in competition with his coworkers.

Wrzesniewski et al. (1997) admit their Career dimension «has the ‹thinnest› definition, focusing almost entirely on . . .advancement» (p. 32). Indeed, only 3 out of the 18 items correlated significantly ($p < .05$) with the Career orientation, namely «I expect to be in a higher level job in five years» ($r = .58$), «I view my job primarily as a stepping stone to other jobs» ($r = .55$), and «I expect to be doing the same work in five years» ($r = -.47$). This leaves room for different forms of careers, beyond mere advancement.

For instance, Gerber, Wittekind, Grote, and Staffelbach (2009) distinguish between four career orientations, using latent class analysis in two Swiss samples with $n_1 = 835$ and $n_2 = 737$ employees. Findings (Gerber et al., 2009, fig. 1 on p. 311) suggest both *independent* and *traditional/promotion* career orientations are compatible with Wrzesniewski et al.'s (1997) Career orientation. In contrast, the *disengaged* career orientation rather mirrors the Job orientation, and the *traditional/loyalty* career orientation resembles both the orientation of a Calling or of a Profession merged with the organization (Van Doorn, 1965).

In contrast, Wilensky's (1964) Careerist reflects more clearly the *traditional/promotion* career orientation (Gerber et al., 2009). This, however, is not surprising, because the *independent* career is a newer type (p. 304) of career, corresponding to the prominent examples of the boundaryless (Arthur, 1994) or protean (Hall, 2004) career.

Moskos (1977a) does not include the Career orientation. Instead, the military sociologist Janowitz (1961) refers to the Careerist and contrasts him to those motivated by tradition, educational opportunities, or military experience as a such (p. 111). For careerists, «the importance of public service is reduced from an end-in-itself to one factor to be weighed with other factors in judging the worth of the military profession» (p. 119). This further corroborates the distinction between the Career orientation and the Calling or Profession orientation.

Thompson and Bunderson (2003) argue that individuals with a Career orientation are interested in establishing connections and become integrated, to enable their advancement (p. 577–578). Such an

integration involves the exchange of socio-emotional currency, the substance of the relational contract (p. 574). This understanding fits the *traditional/promotion* career, and only to lesser degree the *independent* career; however, even among independent types, almost 50% refuse the option of «a short time in lots of organizations» (Gerber et al., 2009, p. 311). Thus, Career orientation involves a relational contract.

6.2.2.3 Calling.

Wrzesniewski et al. (1997) describe the Calling orientation as follows (p. 24):

> Person C's work is one of the most important parts of his life. He is very pleased that he is in this line of work. Because what he does for a living is a vital part of who he is, it is one of the first things he tells people about himself. He tends to take his work home with him and on vacations, too. The majority of his friends are from his place of employment, and he belongs to several organizations and clubs relating to his work. Person C feels good about his work because he loves it, and because he thinks it makes the world a better place. He would encourage his friends and children to enter his line of work. Person C would be pretty upset if he were forced to stop working, and he is not particularly looking forward to retirement.

Individuals who perceive work as a Calling agree with statements such as «My work is one of the most important things in my life» ($r = .59$, $p < .05$) or «If I was financially secure, I would continue with my current line of work even if I was no longer paid» ($r = .47$, $p < .05$) and generally answer obversely to those with a Job orientation (Wrzesniewski et al., 1997).

Several authors refer to Calling as the most superior type of work orientations (Bellah et al., 1985; Schwartz, 1986; Baumeister, 1991). The religious connotations of the term presumably explains the high regard in which Calling is hold. Actually, the idea that any occupation can be viewed as a Calling (or vocation) goes back to Martin Luther (Dik & Duffy, 2009, p. 426). According to Weber (1920/2016), Luther's conception of the calling (pp. 50–77) was at the heart of the protestant work ethic, laying the foundation of capitalism.

Luther even invited lansquenets and mercenaries to see their work as a Calling (Ellwein, 1977, p. 52); thus perceiving military work as a Calling has a long tradition. However, a call to arms may not only come from God, but from society as well (Baumeister, 1991). Similarly, Wrzesniewski et al. (1997) acknowledge the religious background, but elaborate Calling in a secular way. Wilensky (1964) – although choosing a religious term – sees the Missionary as referring to a social movement or «religious-political groups» (p. 151). Thus, despite its religious origins, Calling allows for both sacred and secular meanings.

Moskos (1977a) highlights the transcendent aspect of Calling, in contrast to the Profession, which is focused on the very task itself (pp. 2–3):

> A *calling* is legitimated in terms of institutional values, i. e., a purpose transcending individual self-interest in favor of a presumed higher good. . . . Members of a calling generally regard themselves as being different or apart from the broader society and are so regarded by others. . . . Military service has traditionally had many features close to the calling model. One thinks of the extended tours abroad; the fixed term of enlistment; liability for 24-hour service availability; frequent movement of self and family; subjection to military discipline and law; and inability to resign, strike, or negotiate over working conditions. . . .

This differentiation is in line with Janowitz (1961). Interviewing $n = 113$ colonels and brigadier generals, he found that only for «a substantial minority (…) the military career had overtones of a

‹Calling›» (p. 107). In this context, he refers to «missionary zeal» (p. 108), closing the circle to Wilensky (1964) and further buttressing the distinction between Calling and Profession orientations.

To summarize, both secular and religious understandings of Calling imply that the purpose of work is not the self, the organization, or the task, but a higher good or ideal. Yet both the exchange of ideological currency and the purpose beyond individual and organizational benefits lie at the core of ideational contracts (Thompson & Bunderson, 2003). Thus, Calling orientation involves an ideational psychological contract.

6.2.2.4 Profession. Wrzesniewski et al.'s (1997) typology does not include a Profession orientation. Instead, Moskos (1977a) states regarding the Profession orientation (p. 3):

> A *profession* is legitimated in terms of specialized expertise, i. e., a skill level formally accredited after long, intensive, academic training. . . . There is also the presumption that the practice of one's specialty will be a lifetime career. . . . The term «military professional» is one widely used by service members to describe themselves. . . . the multitiered military education system for officers . . .is patterned after the profession model.

Crucial to the generalizability of the Profession orientation, any individual may consider his work as a profession, even if, in rigid sociological terms, it is at most a «would-be profession» (Hughes, 1958, p. 133) or «semi-profession» (Etzioni, 1964, p. 33). Thus, civilian employees and even (non-employed) senior active reservists may see their military work as a Profession, not unlike Wilensky's (1964) question «The professionalization of everyone?».

In contrast to all of Wrzesniewski et al.'s orientations, the task itself is a purpose for the individual with a Profession orientation. Further, Sociology of Professions (Pfadenhauer & Sander, 2010) provides a detailed blueprint for Moskos' «Profession model». Flexner (1915/2001) was probably the first to present a list of 6 criteria, dominating the Sociology of Professions for decades (Cogan, 1955, p. 106). His text further helps by distinguishing the professional from the Careerist (Flexner, 1915/2001, p. 156):

> Professions involve essentially intellectual operations with large individual responsibility; they derive their raw material from science and learning; this material they work up to a practical and definite end; they possess an educationally communicable method; they tend to self-organization; . . .

Apparently, Profession and Career differ in at least two aspects. The Profession orientation pays more attention to the social context, whereas the Career orientation focusses on the individualized path. The Profession orientation emphasizes work as a value in itself, whereas the Career understands work as a means to advancement. Wilensky (1964) stresses both aspects. His professional service expert is oriented towards the (outside) colleague group rather than the workplace hierarchy, identifies with the profession rather than with the incumbent position, and emphasizes the full use of skills rather than advancement opportunities (chart 2 on p. 151). Although there were even more fine-grained indicators, such as the 22 elements of professionalization presented by Harries-Jenkins (1970, Table 1 on p. 58), these two aspects are sufficient to establish the different associations with psychological contracts.

Social and relational elements, as reflected in the professional association and the professional group identity (Harries-Jenkins, 1970; Goode, 1957; Downes, 1985; Moskos, 1977a; Janowitz, 1961), imply an exchange of socio-emotional currency (see Thompson & Bunderson, 2003). However, the corresponding

bonds relate to the occupational group, that is the profession in the sociological sense, rather than to the organization. Although the military profession is completely fused with the organization (Van Doorn, 1965), both entities continue to exist, potentially causing conflicts (Sorensen & Sorensen, 1974). The organizational context is often a thread to important aspects such as autonomy and the service ideals of a Profession (Wilensky, 1964), by inferring controls in an organizational rather than in a professional logic (Barber, 1963). The Profession orientation is thus unlikely to involve a relational contract with the organization. Rather, with its focus on work contents, the Profession orientation may involve a sub-factor of the transactional layer, found in the analysis of the psychological contract.

I have argued that the transactional layer involves the exchange of economic currency, in line with the Occupation orientation. However, confirmatory factor analysis in chapter 4.4.1 suggests that transactional layers contain both a transactional-monetary and a transactional-content element. These elements did not emerge as independent layers, but rather as 2nd order factors of the psychological contract, namely sub-factors of the transactional layer. The transactional-monetary sub-factor involves time and money.[81] Contrastingly, the transactional-content sub-factor involves responsibility, tasks, and training. This reflects the characteristics of the Profession orientation. The transactional-content sub-factor forms a sufficiently reliable scale (Cronbach's $\alpha = .608$). Thus, I suggest this relationship as a hypothesis in addition to the main relationships between Wrzesniewski et al.'s (1997) WO3 and the three layers of the psychological contract (Thompson & Bunderson, 2003).

6.2.3 The relationship between work orientation and psychological contract

To summarize, I suggest three straightforward relationships of the psychological contract layers to Job, Career, and Calling, and an additional relationship between the transactional-content sub-factor and the Profession orientation. In line with Thompson and Bunderson's (2003) proposition of «theoretical cousins» (pp. 577–578), the main relationships read:

> **Proposition 6.1:** Job, Career, and Calling types of work orientations correspond to the transactional, relational, and ideational layers of the psychological contract.

To translate this proposition 6.1 into testable hypotheses, the structure of the psychological contract needs to be considered. Schurer Lambert et al. (2003) showed that the psychological contract consists of promised inducements P, delivered inducements D, and contract fulfillment F. Chapter 4 provides evidence that each layer exhibits this structure. Thus, determining the structural element involved is crucial. Studying the mechanisms underlying the proposed correspondence resolves the issue.

Screening and self-selection (Salop & Salop, 1976) may foster congruence between work orientations and perceived promises. In the Swiss Armed Forces, the selective procedure is especially sophisticated for both senior active reservists and military professionals, but, in the upper hierarchy, increasingly for

81 These elements may possibly come closer to the Occupation orientation, but the two items do not form a proper scale (Cronbach's $\alpha < .4$). Also, Thompson and Bunderson's (2003) suggestion does not refer to sub-factors of the transactional contract.

civilian employees as well.[82] In addition, the Swiss Armed Forces offer self-selection devices: An active reservist aspiring to promotion accepts that the number of days on duty will rise with increasing rank. For employees, the Swiss Armed Forces provide quite strongly deferred pay and a transparent scheme of wage brackets. It is thus less likely that an individual selects himself into the Swiss Armed Forces, if his perceived promised inducements do not match the work orientation in the long run.

The argument of screening and self-selection presumes that work orientations exist before the individual enters the organization. This is consistent with the literature: work orientations are contents of identity (Skorikov, 2008), and work-related identities are already formed in adolescence (e. g., Vaughan & Roberts, 2007). Thus, through screening and self-selection, a certain adjustment between promised inducements and work orientation is expected.

Contrastingly, an individual's work orientation may not directly influence perceived delivered inducements or contract fulfillment (*nota bene* by the organization), but only be biased to reduce cognitive dissonance (Festinger, 1962). Admittedly, cross-dimensional relations are conceivable. For instance, individuals with Job orientations may more easily perceive relational or ideational contracts as fulfilled. Such complementary relations notwithstanding, how an orientation shapes the perceived promises seems conclusively more fundamental than how the orientation may moderate the fulfillment of these promises. Consequently, I suggest the relation takes place directly between the orientation and the promised inducements. In addition, work orientations represent ideal types. Thus, individuals may gradually adhere to any work orientation. In summary, proposition 6.1 is translated into

Hypothesis 6.1:

a. The stronger an individual's Job orientation, the higher the transactional promised inducements.
b. The stronger an individual's Career orientation, the higher the relational promised inducements.
c. The stronger an individual's Calling orientation, the higher the ideational promised inducements.

Similarly, with regard to the Profession orientation, I suggest

Hypothesis 6.2: The stronger an individual's Profession orientation, the higher the transactional-content promised inducements.

6.2.4 Outcomes of the work orientation

The dissertation at hand chiefly considers three outcome variables: work satisfaction, turnover intention, and work effort (see chapter 3.6.3 for details). Descriptions (see chapter 6.2.2) suggest that Job orientation causes lower work satisfaction than Career orientation, but Calling and Profession orientations may

82 Remember that the population researched only comprises seniors.

Box 6.5: A survey participant reflecting the influence of Calling on army-life balance

«Früher war ich absolut glücklich und voll engagiert bzw. der Beruf war mein Lebensinhalt und dabei ist die Familie etwas zu kurz gekommen was leider nicht mehr korrigiert werden kann.» [no. 1779]

imply highest levels of work satisfaction. Contrastingly, Career orientation most strongly increases turnover intentions; Job orientation does so less strongly, and Calling and Profession orientations likely entail low levels of turnover intentions. In addition, it seems reasonable to expect Career, Calling, and Profession orientations to induce rather high levels of work effort, whereas the Job orientation may imply lower levels.

These conceivable expectations are in line with the small amount of research which includes multiple work orientations. Wrzesniewski et al. (1997) find ($n = 135$) that individuals with a Calling orientation experienced significantly ($p < .05$) higher job satisfaction than Job and Career oriented employees. Peterson et al. (2009) report that job satisfaction was strongly positively related to Calling ($r = .54$), weakly negatively to Career ($r = -.16$), and strongly negatively to Job ($p = -.63$) orientations ($n = 9\,803$ and $p < .001$ for all correlations). Caforio and Nuciari (1994) found that occupational officers have a higher turnover intention than Professional officers ($n = 4\,659$).

Given the apparentness of the suggested outcomes, the present chapter takes an explorative approach to work satisfaction, turnover intention, and work effort. In contrast, the more controversial «dark side of Calling» (Duffy & Dik, 2013, p. 433) merits a testable hypothesis.

Recently, Calling has gained attention from Organizational Behavior scholars (Elangovan, Pinder, & McLean, 2010), substantiating Wrzesniewski et al.'s (1997) findings of Calling as a favorable work orientation. Calling has work-related outcomes beneficial to both the individual (e. g., Duffy & Sedlacek, 2007) and the organization (e. g., Duffy et al., 2011). On the other hand, Elangovan et al. (2010) argued that «being engaged in a Calling can be all-consuming and never ending» (p. 436), cautioning against potentially dysfunctional effects of callings.

Despite the growing interest in Calling as an Organizational Behavior construct, research in the downsides of Calling is still limited (Duffy & Dik, 2013), mostly relying on qualitative studies (e.g, Kreiner, Hollensbe, & Sheep, 2006; Bunderson & Thompson, 2009). Calling comprises strong involvement (Hall & Chandler, 2005; Dobrow & Tosti-Kharas, 2011), but strong work involvement has a negative impact on work-life balance (Byron, 2005; Darcy, McCarthy, Hill, & Grady, 2012). In line with this, Guest (2002) proposed work orientation to be a determinant of work-life balance. Thus, I suggest

> **Hypothesis 6.3:** The stronger an individual's Calling orientation, the lower his perceived army-life balance.[83]

83 This terminology avoids confusion with the work-life balance of senior active reservists outside the armed forces; see chapter 3.6.3.

6.2.5 The distribution of work orientations in the Swiss Armed Forces

The Armed Forces and Society literature offers several suggestions regarding the distribution of work orientations within the armed forces. Of these, I focus on four aspects. First, I compare the frequencies of the different work orientations between the three subsamples. Second, I investigate the age distribution of the work orientations. Third, I inquire into the distribution with respect to the income of senior active reservists. Fourth, I study the distribution of work orientations with regard to branches (see chapter 3.6.3) and organizational units (see chapter 3.5.3).

Box 6.6: Survey participants reflecting differences between professionals and civilians

« Je trouve dommage le fossé qu'il existe entre les collaborateurs militaires (militaires de carrières) et les collaborateurs civils. » [no. 1426]

«(…) die Kluft in unserem Amt zwischen den zivil Angestellten und den Berufskadern (…) Dabei wird von den zivil angestellten MA in allen Positionen die selbe Verfügbarkeit wie von Berufskadern erwartet. Diese stehen 24h/7 Tage die Woche zur Verfügung und erwarten das selbe von den zivilen Mitarbeitern. ‹Ich will...› ist der Leitsatz dieser Berufskader und das geht bei den zivilen Mitarbeitern eben nicht.» [no. 3246]

«Als ziviles Kadermitglied bringe ich eine andere Erfahrung und Ausbildung in meine Führungstätigkeit ein, als ein Berufsoffizier. Diese beiden Führungskulturen stören sich gegenseitig.» [no. 3303]

6.2.5.1 Differences between subsamples. Debates in Armed Forces and Society suggest differences between military and civilian employees (P. Klein, 2006; Moskos, 1977b) as well as between reservists and professionals (Werkner, 2012; Szvircsev Tresch, 2005; Moskos, 1973). The next four paragraphs resume these discussions, and are ordered according to work orientations.

«*Ideological* (dis)similarities between civilians and military men» Moskos (1973, p. 267, his emphasis) form the cornerstone of Moskos' I/O model. Moskos (1977b) traces the suggested change from an institutional to an occupational model back at the abolition of the draft in the United States (p. 44) and sees the increasing share of civilian employees as paralleling the trend towards the occupational model (p. 47). The underlying assumption is that civilian employees are inherently more prone to having an Occupation. The equivalent of Moskos' Occupation orientation is the Job orientation; thus I expect the Job orientation to be more prevalent among civilian employees than among uniformed personnel.

Swiss military professionals in the strict sense (see chapter 2.1.2.1) are usually denoted as «career officers and NCOs» (e. g., Stocker et al., 2010) in English translations, suggesting they are more prone to the Career orientation. However, it is the reserve system which fosters Career orientations, due to its unpredictable career consequences (Janowitz, 1961, p. 118). In the Swiss Armed Forces, as well, the system of years of duty increasing with rank (MG, 2016, art. 13) forces senior active reservists into an «up-or-out» logic (see box 6.7). I thus expect senior active reservists to be more Career oriented than military professionals or civilian employees.

Haltiner (1988; Haltiner and Hirt, 2000) argued that the Swiss Armed Forces are inherently institutional in the sense of Moskos' I/O model, due to the Swiss militia principle. In this dissertation, the militia is an active reserve (Szvircsev Tresch, 2011; Beck & Staffelbach, 2008). The institutional model

Box 6.7: Survey participants reflecting issues of careerism among senior active reservists

« Une chose serait de donner parole à des officiers de milice impliqués et non conformés à une logique de carrière. » [no. 3399]

«Ich würde gerne (…) mich zurückstufen lassen. Leider nicht möglich.» [no. 485]

involves a Calling orientation (Moskos, 1977b); thus one may expect that Calling is more prevalent among senior active reservists. However, the I/O model may overestimate this stance; already Janowitz (1961) realized that only a minority follows a Calling. Further, Moskos' (1977a) assumption ignores possible self-selection into the organization; it is at least questionable why Calling oriented senior active reservists should *not* hire into the organization offering this Calling. On the other hand, a man's Calling does not force him to make it his everyday work (Schein, 1990). To conclude, expectations about Calling orientation are mixed and therefore, no prevalence is hypothesized.

Finally, military professionals are most prone to the Profession orientation, not because of the terminology, but due to the professional characteristics of their work (Leonhard & Biehl, 2012; Huntington, 1957; Janowitz, 1961). These characteristics may be variously expressed for different ranks and professional categories (see chapter 3.6.1). Yet in general, professional characteristics are more common in these groups than for civilian employees or senior active reservists. Thus, I expect the Profession orientation to be more prevalent among military professionals than among civilian employees or senior active reservists.

To summarize, this leads to

Hypothesis 6.4:

a. Job orientation is more prevalent among civilian employees than among military professionals and senior active reservists.
b. Career orientation is more prevalent among senior active reservists than among military professionals and civilian employees.
c. Profession orientation is more prevalent among military professionals than among senior active reservists and civilian employees.

6.2.5.2 Differences regarding age. Three reasons may account for age differences between work orientations. First, inner-personal developments may influence work orientations. Second, generational changes triggered from outside the armed forces may cause changes inside the armed forces. Third, the shift from an institutional to an organizational model (Moskos, 1977b; Moskos et al., 2000) may account for differences. The present study is cross-sectional; thus, it can not discern inner-personal developments from generational or institutional effects. Nevertheless, an appropriate hypothesis can be set up, because the changes in generations and institutions lead to similar effects. The next three paragraphs elaborate each channel.

Work identities develop over time. This occurs through ongoing socialization within the organization (see Apelt, 2012), by means of external effects, such as starting a family (Kaufman & Uhlenberg, 2000), or simply by getting older (Hall & Mansfield, 1975; Mirvis & Hall, 1994). Boundaryless (Mirvis & Hall, 1994) or independent (Gerber et al., 2009) careers are particularly prevalent in early career stages (p. 306). The Career orientation reflects both boundaryless and independent careers (see chapter 6.2.2). I thus expect Career orientations to occur more frequently among younger individuals. Further, involvement and intrinsic motivation steadily increases with age (Hall & Mansfield, 1975), fostering Calling and Profession, at the cost of Job and Career orientation.

Values and identities are also related to generational change (Lyons & Kuron, 2014). In particular, the youngest generation, denoted as *Generation Y*, *Millennials*, or *Generation Me*, tends towards lower expectations with regard to job security, and is more open to development beyond the linear careers, an 18-year longitudinal study of $n = 115\,044$ U.S. employees has found (Kowske, Rasch, & Wiley, 2010, pp. 275–276). The authors also noted that generations have far more in common than they are different. Nevertheless, generational effects support the same changes suggested by individual developments.

In addition to the value shift in the 1990s, the paradox of armed forces in warless societies has stimulated Occupational tendencies in western armed forces (Collmer, 2006). The shift from modern to postmodern armed forces is multifaceted; nevertheless, the change from the institutional to the occupational model remains a central aspect (Moskos et al., 2000). Haltiner and Hirt (2000) report that despite the inherently institutional character of the Swiss Armed Forces, Occupational trends cannot be denied. Yet it is likely that a different organization attracts different applicants. Thus, postmodern trends in the Swiss Armed Forces further compound the general shift due to individual and generational developments.

Summarizing individual, generational, and institutional developments thus yields

> **Hypothesis 6.5:** For all three subsamples, Calling and Profession orientations are more prevalent among older than among younger individuals, whereas Job and Career orientations are more prevalent among younger than among older individuals.

Box 6.8: A survey participant reflecting branches and organizational units

«Ich habe die meiste Zeit meiner militärischen Laufbahn in der Luftwaffe verbracht, als Chef Flieger bin ich zwar in der Infanterie aber im Herz und in der Beurteilung der Umfrage immer noch Luftwaffenangehöriger.» [no. 152]

«Ich denke, wenn man in der Luftwaffe auf der Flightline arbeitet, kann es fast nur überwiegend positiv sein, etwas mehr oder weniger Idealismus hin oder her.» [no. 3788]

6.2.5.3 Differences regarding branches and organizational units. A branch and organizational unit is expected to have an impact independent of whether someone is an active reservist or an employee, as long as the latter is – or has been – incorporated. However, all senior active reservists are sampled

from the Land Force, and 4 of the 5 Grand Units are (Mountain) Infantry Brigades. Thus, both branches and organizational units are biased. Consequently, hypotheses are tested for employees only.

With respect to the branch, it has been postulated that the closer a service is to combat operations, the more it follows a demarcation which separates it from civil culture and logic (Moskos, 1973; Vom Hagen & Tomforde, 2012).

The logic inherent to combat, in opposition to civil reasoning, is likely to determine the branches' cultural organization (Vom Hagen & Tomforde, 2012). These subcultures are maintained through ongoing socialization of individuals entering the armed forces (Apelt, 2012). The paradox of armed forces in warless societies presents a challenge to the self-legitimation of soldiers (Kümmel, 2006), and the segregation of the military from civil society attempts to resolve this paradox. Conceivably, the challenge is greater for «specialists on violence» (Lasswell, 1941, p. 458) in combat troops, than for individuals in presumably more civilian branches, such as engineering or logistics.

However, the context of Switzerland in the 21st century suggests that these differences are small, if existent at all. Switzerland has not been directly engaged in combat operations over the course of the last 150 years. For this aggregate state, Soeters et al. (2006) coined the term «‹cold› organization» (p. 246), in contrast to the «‹hot› organization», which is the *raison d'être* of armed forces. Armed forces in the cold state adjust to the bureaucracy of public administration (Elbe & Richter, 2012); put differently, they become increasingly civilized. Also, the Swiss militia system causes an extraordinary amalgamation of armed forces and society (although to a decreasing degree, Haltiner, 1988; Haltiner & Hirt, 2000). This distinctive feature further narrows the gap between the military and society, consequently leaving less room for differences within the organization.

In addition, Moskos et al. (2000) characterized the postmodern military by the diminution of differences between combat and non-combat troops. The range of military missions, broadened to include «international crisis and conflict management, peacekeeping, peace enforcement, peace building, nation building, humanitarian interventions and emergency and disaster service» (Haltiner & Kümmel, 2009, p. 76), is indeed more compatible with civil society.

Consequently, I suggest that if differences can be found at all, Job and Career orientations, reflecting the occupational model, are more prevalent branches closer to society, and Profession and Calling, reflecting the institutional model, are more prevalent in combat branches.

The reasoning with regard to branches can be transferred, and we can assume differences between organizational units. For instance, differences have been hypothesized for the Air Force (e. g., Wood, 1988), which is known to be much more technologically driven than the Land Forces (Moskos, 1977b, p. 44). In contrast, units with more civilian tasks and higher shares of civilian employees may likely provide cultural environments fostering more civilian orientations. Namely, these units are the Armed Forces Logistics Base and the Armed Forces Command Support Organization, as well as the Armed Forces Staff and the Armed Forces Joint Staff. However, the same restrictions (cold state, militia system, postmodernity) mentioned for the branch effects apply here as well.

As a special unit, I expect the Armed Forces College to have a higher share of Profession orientations. This organizational unit comprises the NCOS, and the MILAC as educational institutions for military professionals, and the General Staff School (GSS) as well as the Commandant and Staff Officer School (CSOS) for both senior active reservists and military professionals. Thus, employees working in the Armed Forces College may more consciously deal with aspects of the profession.

In summary, these organizationally related assumptions lead to

Hypothesis 6.6:

a. Calling and Profession orientations are more prevalent in combat branches (C) than in combat support branches (CS) or combat service support branches (CSS), at the cost of Job and Career orientations.
b. HQ and supportive organizational units have a higher share of Job oriented, the Land Forces a higher share of Calling oriented, the Air Force a lower share of Calling oriented, and the Armed Forces College has a higher share of Profession oriented employees.

6.2.5.4 Income distribution. The federal «fund for loss of earned income» (Federal Social Insurance Office, 2015) only covers 80% of the reservist's salary, with an upper limit of 196 CHF/day (see chapter 2.1.2.3 for details). Thus, for a notable part of the reservists in the sample, military service is accompanied by economic losses.[84] Consequently, it is expected that with growing income, economic motivations recede into the background and Calling becomes more and more important, according to

Hypothesis 6.7: With increasing income, senior active reservists tend to be more Calling oriented.

6.2.6 The impact of occupational titles on work orientations

The remarks of Huntington (1957) shed light on to the present distinction between Career, Calling, and Profession. Huntington identified the potential pitfalls of labels in his epochal assessment of the officer profession (p. 8):

> The phrases «professional army» and «professional soldier» have obscured the difference between the career enlisted man who is professional in the sense of one who works for monetary gain and the career officer who is professional in the very different sense of one who pursues a «higher calling» in the service of society.

The sample provides a unique opportunity to study the influence of different occupational titles[85] on work orientations. Occupational titles can have a crucial impact on employees' identities (Caldwell, 2002). Yet, in the case of the Swiss Armed Forces, the titles of military professionals were changed in 2004.

84 There might be some employers willing to pay the difference, but there is no indication that this was the rule, and for the self-employed, it does not apply either.

85 To prevent confusion with the terminology of the Job orientation, I use «occupational title» instead of the more usual «job title».

Before then, the official designation was *instructor*, an actual description of the main activity of military professionals (DR 04, 2015, art. 27). As of 2004, the new terminology contains substantial differences between the three languages (see table 6.1).

The reform project «Armee XXI», enacted on January 1, 2004 was a massive transformation by Swiss standards (Borchert & Eggenberger, 2011). One of its core elements was the expansion of the professional component (ibid.). Thus, on the eve of the reform, and assumedly to emphasize their expanded range of tasks, Swiss military law changed article 47 which defined the professional component. The article's original title *teaching staff* («Lehrpersonal», MG, 2001) was replaced by *military personnel* («Militärisches Personal», MG, 2003). Thus the occupational title *Instructor* («Instruktor», MG, 2001, Art. 47,1a) was abolished and consequently, the (already existing, see MG, 2001, art. 47, 2) terminologies *career officer/NCO* became the dominant term.

Although some of the «new» labels had at times been used in previous decades (e. g., Haener, 1963), this renaming was essentially a shift from a traditional Swiss label (see Olsansky & Moccand, 2015; Lätsch, 1995), focussing on the task of teaching, to the designations found in the surrounding countries, each with its own, particular meaning (see table 6.1 for the sources of foreign terminologies).

The German *Berufsoffizier* is neutral in connotation; the term *Beruf* does not carry an inherent judgement. In contrast, the French terminology *officier de carrière* explicitly relates to the Career orientation. Finally, the Italian expression *ufficiale di professione* reflects the Profession orientation.

I suggest these different expressions may foster different work orientations in two channels: selection and self-perception. On the one hand, potential military professionals may be heterogeneously attracted by the different terminologies. For instance, the French designation may attract a higher share of careerists from the labor market, but the Italian designation may rather appeal to those with a Profession orientation. On the other hand, the everyday use of the terminology may impact the self-perception of military professionals, slowly changing their work orientation.

These differences are expected between the language groups. Alemannic (i. e., German speaking) and Latin (e. g., French or Italian speaking) Switzerland form different sub-cultures (House et al., 2004, see also chapter 3.6.4); thus, culture needs to be controlled for. Civilian employees serve as control groups, because they are not subject to such differences in occupational titles. Consequently, if differences are found among military professionals, but not among civilian employees, occupational titles assumedly cause some differences. Thus, I set up the final

> **Hypothesis 6.8:** Among military professionals alone, the share of Career oriented is higher for French speakers, and the share of Profession oriented is higher for Italian speakers, compared to other mother tongues.

Table 6.1: Occupational titles of military professionals in the Swiss Armed Forces. The respective paragraph in the regulatory law (Funktionsbewertungsverordnung VBS, 2016) is indicated in the column *source*. Titles referring to the Career orientation are highlighted in red. Titles referring to the Profession orientation are highlighted in yellow.

English	German	French	Italian	Source
Senior staff officer	Höherer Stabsoffizier (HSO)[a]	Officier général	Alto ufficiale superiore	–[b]
Career officer	Berufsoffizier[c] (BO)	Officier de carrière[d]	Ufficiale di professione[e]	App. 1, 1.1–11
Career NCO	Berufsunteroffizier (BU)	Sous-officier de carrière	Sottufficiale di professione	App. 1, 1.12–19
Specialized career officer	Fachberufsoffizier (FBO)	Officier de carrière spécialiste	Ufficiale di professione specialista	App. 1, 2.1–12
Specialized career NCO	Fachberufsunteroffizier (FBU)	Sous-officier de carrière spécialiste	Sottufficiale di professione specialista	App. 1, 2.13–22
Contractual officer	Zeitoffizier (ZO)	Officier contractuel	Ufficiale a contratto temporaneo	App. 1, 4.1–4
Contractual NCO	Zeitunteroffizier (ZU)	Sous-officier contractuel	Sottufficiale a contratto temporaneo	App. 1, 4.5–7
Career bord operator	Berufsbordoperateur (BBO)	Opérateur de bord de carrière	Operatore di bordo di professione	App. 3, 3.8–10
Career air force pilot	Berufsmilitärpilot (BMP)	Pilote militaire de carrière	Pilota militare di professione	App. 3, 3.1–7

[a] German abbreviations are in parentheses.
[b] Senior Staff Officers (internationally: Generals) are not included in the Funktionsbewertungsverordnung VBS (2016). Instead, the terminology is drawn from the DR 04 (2015, Art. 22, 8).
[c] *Berufsoffizier* is the official term in Germany's *Deutsche Bundeswehr* (Soldatengesetz, 2015, §§ 37–57).
[d] *Officier de carrière* is the official term in Frances's *Forces armées françaises* (Loi portant statut général des militaires, 2005, Art. 2/Art. 21).
[e] In the *Forze Armate Italiane*, the legal terminology is *ufficale in servizio permanente* (Norme per l'istituzione del servizio militare professionale, 2000, Art. 2, 1.a), but the law's title refers to the *servizio militare professionale*, and Italy's literature also refers to the *ufficiale di professione* (e.g, Battistelli, 1996/2001, p. 29).

6.3 Empirical Methods

Measurements and research models required for hypothesis testing depend on a strategic choice. I could either stay with Wrzesniewski et al.'s (1997) single-item measurements and the ensuing categorization technique, or I could develop multi-item scales to apply more sophisticated methods, such as structural variance analysis (Ullman, 2013) or latent cluster analysis (e. g., Backhaus et al., 2013). I provide five reasons to follow Wrzesniewski et al. (1997) closely instead of establishing new scales.

First, Wrzesniewski et al.'s approach is of compelling simplicity, both from a theoretical aspect and in terms of practical interpretability. Understanding work orientations as ideal types suggests first describing these ideal types and then measuring the individual's accordance with these types. Practically, individuals categorized according to their work orientations can be demonstratively compared.

Second, I argued to expand Wrzesniewski et al.'s WO3 into the present WO4. However, the introduction of both a fourth work orientation type *and* a new measurement strategy would put research question 6.1 at stake by making it indiscernible whether findings happen due to method or content.

Third, Thompson and Bunderson (2003) directly refer to Wrzesniewski et al. in their suggestion of «theoretical cousins» (p. 577). It is the main theme of my dissertation to investigate such theoretical cousins of the psychological contract, and deviating from the original approach would imperil this ambition.

Fourth, multiple item scales are available only for some orientations (e. g., the Calling and Vocation Questionnaire Dik et al., 2012). Developing scales for the full set is beyond the scope of the present study. Besides, survey length constraints impede additional multiple item scales (see chapter 3.3).

Fifth, Wrzesniewski et al.'s approach has been successfully applied, among others by Peterson et al. (2009) in their large sample ($n = 9\,803$) study on zest and life satisfaction. Thus, Wrzesniewski et al.'s items present a solid foundation to the expansion of the WO3 into the suggested WO4.

To resume, the combination of single-item measures and categorization technique captures essential aspects of work orientations and offers advantages in interpretability. Nonetheless, the measures and technique leave room for improvement. Consequently, the model subsection proposes a refinement of the categorization technique and suggests the correlation technique as an alternative. In addition, appendix A.3.2 provides non-validated multi-item scales, as a proposition for further research.

6.3.1 Measurements of work orientations

This subsection focusses on measurements of work orientations. Measurements of the outcome variables were put into chapter 3.6.3 and those of the control variables into chapter 3.6.4. Measurements of perceived promised inducements in terms of psychological contracts can be found in chapter 5.3.1.

The empirical strategy implicates the use of Wrzesniewski et al.'s (1997) items. Harzer and Ruch (2012) developed and applied a German translation in a sample of $n = 111$ «highly educated» (p. 364)

employees. Prof. Dr. Ruch[86] has kindly provided a translation, at personal request. These German items were further translated according to the procedure in chapter 3.4. Appendix A.3.1 lists the items in all languages.

To allow for a comparison, a similar item for the Profession type had to be developed. Therefore, I searched through the literature of both Military Sociology (Collmer, 2010) and the Sociology of Professions (Pfadenhauer & Sander, 2010) for explicit criterion lists of professions and statements about Professionals. The inclusion of Armed Forces and Society literature may be liable to another concern raised by Dik et al. (2012), that is the frequently occurring sample-specificity in scale development of work orientations (pp. 243–244). Thus, I grant particular attention to the generalizability of all elements of the new item. Further, I describe the item generation process in detail, to keep it traceable.

From the military literature, Janowitz (1961) with 13 and Moskos (1977a) with 8 statements provide the most substantive contribution (see table 6.2 for exemplary statements). Huntington (1957), despite his seminal contribution to the military profession, adds only a set of 3 characteristics «expertise, responsibility, and corporateness» (p. 8), due to his macroscopic focus on civil-military relationships.

Vagts' (1937/1959) antecedent *History of Militarism* refers to the military profession several times (e. g., pp. 184, 331, and 482), but only mentions characteristics at one point, stating «As in other Professions, . . .officers may be unpolitical as so-called experts or specialists, fully absorbed by their specific tasks» (p. 295). Another early contribution comes from Lasswell's influential (Aron, 1979) essay «The garrison state», where he coined the widely known term «specialists on violence» (Lasswell, 1941, p. 458).

Katenbrink, Jr.'s (1969) study in R. W. Little's (1969) «significant»[87] (Hays, 1970) collection *Selective Service and American Society* adds 3 statements. Downes (1985) was consulted, to reflect the discussion about de-professionalization, providing an explicit list of 8 characteristics of professionalization. To account for the non-Anglo-Saxon context, I included two German authors with 6 (Schössler, 1980) and 4 (Wachtler, 1986) statements, 3 statements from a cross-national European study (Caforio & Nuciari, 1994), and 4 statements from a recent German overview article (Elbe, 2006).

Civilian Sociology of Professions provides several exhaustive criterion lists, namely Flexner's (1915/2001) 6 explicit criteria (pp. 156–157), Goode's (1957) 8 «characteristics» (p. 194), and Barber's (1963) 4 «essential attributes» (p. 672). In contrast, Carr-Saunders and Wilson's (1933/1964) standard *The Professions* refuses to provide a definition (p. 4). Thus, despite its importance, only one statement has been extracted from this work.

In a less structured form, Parsons' (1949/1954) essay includes 3 statements, and another 3 can be found in Jackson's (1970) editorial introduction to *Profession and Professionalization*. In addition, this collection provides two of the most detailed attempts to define a Profession. Turner and Hodge (1970)

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87 The reader may feel at this point that virtually everything within the literature seems to be seminal, important, influential, or at least significant. However, such attributes cited at times may serve those unfamiliar with the literature and lead them to acknowledge that these sources represent the core of Armed Forces and Society.

Table 6.2: Exemplary quotations from one author of the Sociology of Professions (Barber, 1963) and one of Military Sociology (Janowitz, 1961). For each statement, the content associated with them is indicated. For multiple contents, the statement is multiplied accordingly.

«Some problems in the sociology of the professions» (Barber, 1963)	**Page**	**Associated content**
a high degree of generalized and systematic knowledge;	672	expertise
primary orientation to the community interest rather than to individual self-interest;	672	service
a high degree of self-control of behavior…	672	autonomy
…through codes of ethics internalized in the process of work socialization…	672	ethics/valor/honor
…and through voluntary associations organized and operated by the work specialists themselves;	672	association
and a system of rewards (monetary and honorary) that is primarily a set of symbols of work achievement and thus ends in themselves, not means to some end of individual self-interest.	672	intrinsic motivation
The Professional Soldier **(Janowitz, 1961)**	**Page**	**Associated content**
A professional group develops a sense of group identity…	6	identity
…and a system of internal administration.	6	association
Self-administration…	6	autonomy
…implies the growth of a body of ethics and standards of performance.	6	ethics/valor/honor
The professional, as a result of prolonged training, acquires a skill which enables him to render specialized service.	7	expertise
The elite concept makes it possible to distinguish those members who use their skills to achieve social and political ends from those who are content to practice their profession for personal and immediate rewards.	7	service
…aside from attendance at a service academy, the typical professional spent as much as one-quarter of his career in school or in training situations. The amount of educational training continues to increase in the post-World War II period.	126	ongoing training
The military profession, like other professions, is composed predominantly of officers who are, essentially, experts and specialists, absorbed in their specific tasks.	128	expertise
Thus, it is an unspoken assumption that the military academy must instill in the officer recruit the importance of career success through continuous hard work, self-education, and a concern with the ‹big picture›.	128	longevity
The common identifications forged in four years produce strong like-mindedness…	136	identification
…and a network of close personal contacts.	136	belonging
[They] are thought to be members of a ‹mutual protective society›.	137	association

describes 4 areas of concern containing a total of 8 contents, and Harries-Jenkins (1970) provides the possibly most detailed definition with 22 characteristics.

Wilensky's (1964) distinction was particularly useful. 4 statements about the Professional were used directly. 5 statements regarding the careerist and 4 regarding the missionary were interpreted as reversed contents, to be avoided in the description of the Professional. Overall, I collected a total of 110 statements, 43 from Military Sociology literature and 67 from the Sociology of Professions.

The next step was to go through the statements for specific contents. Some statements resulted in more than one content. For instance, I associated Barber's (1963) third attribute «a high degree of self-control…» with three contents. Inversely, some authors provided multiple statements that I classified identically. In such cases, I counted the recurring contents, assuming that repetition signals importance. Table 6.2 lists examples for both cases. A total of 126 counts in 19 contents was the result.

Next, I ranked contents according to their frequency, from «high» to «low» (see table 6.3). I then expanded the contents into fragments similar to those in Wrzesniewski et al.'s (1997) items. For instance, *identification* was formulated as «D identifies himself with his work». I decided to represent the most frequent content *expertise* (22 counts) by 2 fragments, but not so the second-most frequent *belonging* (19 counts), due to its similarity with *association* (11 counts). Following this, I joined the fragments into one coherent text similar to the other items. To create a generalizable item, I chose wordings which did not refer to the military context.

First, I included high-ranking items. Next, I added all mid-ranking items, resulting in a text somewhat longer than Wrzesniewski et al.'s items. Thus, I removed one mid-level fragment again, and did not include low level fragments at all. The contents, including the counts, are given in table 6.3.

The resulting provisional item, which was formulated in German, was translated into French and Italian according to the procedure explained in chapter 3.4. In the pretest of 45 active reserve officers, 15 of each language group, 2 comments regarding the German version were taken into account to simplify the wording of the German item, without impact on the French and Italian version. The item in the three languages can be found in appendix A.3.1. The final Profession item, translated into English, reads as follows:

> Person D identifies himself with his work. He regards his choice of employment as a long term decision and has invested years of education in pursuing this career. Being able to improve himself is important to him. He will thus join associations and attend gatherings to exchange information with colleagues. He tends to compare himself with professional counterparts rather than other people. Being autonomous in his every day work is important to person D. His work must represent ethical and moral values. Since only a few people are qualified to carry out his profession, person D regards his work as service to the wider society.

6.3.2 Modeling

The strategic choice in favor of Wrzesniewski et al.'s (1997) single-item measures limits the choice in empirical models. However, the single-item measures allow for a refinement of Wrzesniewski et al.'s categorization technique; also, they offer the alternative of a correlation technique, and permit regression models.

Table 6.3: Counts for all contents extracted from literature. For the created item, all contents ranked «high» and «mid» were included, with the exception of †, which was dropped to contain item length. *Reversed* contents (Wilensky, 1964) were explicitly avoided in the item construction.

Count	Content	Ranking	Fragment constructed
22	expertise	High	Being able to improve himself is important to him. ...Since only a few people are qualified to carry out his profession,...
19	belonging	High	He tends to compare himself with professional counterparts rather than other people.
12	ethics/valor/honor	High	His work must represent ethical and moral values.
11	academy	High	...has invested years of education to pursue this career.
11	association	High	He will thus join associations, and attend gatherings to exchange information with colleagues.
7	autonomy	Mid	Being autonomous in his every day work is important to Person D.
7	identification	Mid	Person D identifies himself with his work.
6	service	Mid	Person D regards his work as service to the wider society.
5	longevity	Mid	He regards his choice of employment as a long term decision...
5	practice	Mid†	–
3	responsibility	Low	–
2	idealism	Low	–
2	importance	Low	–
2	recognition	Low	–
7	others	Low	–
3	idealism (R)	Reversed	–
1	rewards (R)	Reversed	–
1	leader (R)	Reversed	–
1	career (R)	Reversed	–
127			

The categorization approach includes definition 6.3 to enable proper wording and refines Wrzesniewski et al.'s technique to better explore outcomes and to test hypotheses 6.4 to 6.8. The regression approach requires the introduction of an auxiliary variable, coined work orientation strength *WOS*, to suggest an alternative way of testing. The regression approach offers a way to compare the outcomes of the categorization and the regression approach. Each approach is developed subsequently.

I introduce notation conventions to distinguish the different operationalizations. In the categorization technique, I use the variables *jb*, *cr*, *cg*, and *pn* for Job, Career, Calling, and Profession. In the regression technique, this corresponds to the dummy variables δ_{jb}, δ_{cr}, δ_{cg}, and δ_{pn}. Yet work orientations may also be considered in the 4-point Likert scale format. By this measure, variables are labeled WO_{jb}, WO_{cr}, WO_{cg}, and WO_{pn}. These variables apply both to the regression technique and to the correlation technique.

6.3.2.1 Categorization technique. The notion of ideal types (definition 6.1) calls for a terminology reflecting that individuals may prefer one, several, or none of the orientations given in a set:

Definition 6.3:

a. *Unambiguous* types are those work orientations where for a given individual, one type scores higher than all other types.
b. *Mixed* types are those work orientations where for a given individual, more than one, but not all types score equal.
c. *Indifferent* types are those work orientations where for a given individual, all types score equal.

The classification of an individual depends on the number of work orientations given; thus, it is an epistemological, and not an ontological classification. Caforio and Nuciari's (1994) cross-national study of the officer profession helps illustrate this. Caforio and Nuciari distinguish Professional and Occupational orientations, derived from Moskos' I/O model (see chapter 6.2.3). Following D. R. Segal (1986), Caforio and Nuciari define *radical Professional* and *occupational* types as those types, rating the respective orientation high, and the other low. In contrast, they denote those with a high rating in both orientations as *pragmatic professional* types, and those rating both orientations low as *indifferent* (sic!) types. Transferred to definition 6.3, radical Professional types and Occupational types are both *unambiguous*; yet pragmatic professional types and indifferent types in the sense of Caforio and Nuciari are both *indifferent* in the sense of definition 6.3.

The terminology of definition 6.3 has been deliberately chosen to underscore the issue of the categorization technique: if there was a third type, for instance Calling, to be added to Caforio and Nuciari's typology, a *pragmatic professional* type would either become unambiguous, if Calling overmatches the other two orientations, mixed, if Calling undermatches the other two orientations, or stay indifferent, if Calling matches the other orientations. In other words, classification in the sense of the above definition 6.3 is deliberately dependent on the number of orientations included.

Given definition 6.3, I can describe Wrzesniewski et al.'s (1997) approach concisely. In the categorization technique, each individual is categorized according to his highest rated orientation if unambiguous, but mixed and indifferent types are removed from the sample. Now, for each category, the means of the variables of interest are tabled, providing results by mean comparisons. The advantages are obvious: the approach is statistically almost trivial, and results are truly descriptive: Career respondents are younger than Calling respondents, Calling respondents have a higher income than Job and Career respondents, but respondents do not differ in health satisfaction (p. 27).

These examples reveal the drawbacks of the categorization approach: could it be that Calling respondents have higher income, *because* they are older? Would Calling respondents experience comparable health satisfaction, if they were of the same age? Simply put, the categorization approach by Wrzesniewski et al. does not account for confounding factors. However, because of the much larger sample size, I can refine the categorization approach in two ways.

For comparing variables of interest between work orientation categories, mean differences are tested *post hoc* with pair-wise comparisons. This essentially corresponds to Wrzesniewski et al.'s approach. I use Dunnett's C procedure, given that the procedure is robust under heteroscedasticity and most suitable for large degrees of freedom (Dunnett, 1980). Going beyond the results provided by Wrzesniewski et al., I repeat pair-wise comparisons for different α levels, that is .05, .01, and .001. This seems like a detail, but it makes a difference given the large sample size, where small differences quickly become significant.

For comparing work orientations within variables of interest, I refer to nominal-by-nominal comparisons, using contingency analysis based on cross-tables (Backhaus et al., 2013, pp. 304–327). Given the large sample size, multi-level cross-tables are feasible, allowing for controls. Again *post hoc*, shares are compared by means of Bonferroni-corrected z-tests, and again for three α levels .05, .01, and .001. In light of the aforementioned examples concerning age, this is a considerable refinement. However, to control for metric controls such as AGE, the variable has to be classified. Then, differences between work orientations can be compared separately for those below 31 years, between 31 and 40 years, and so on.

In general, I indicate overall significance tests using Pearson's χ^2-tests. However, χ^2 becomes inaccurate if more than 20% of cells have an expected count of less than 5. Then, Fisher's exact test produces relief. Consequently, whenever the 20%-threshold in low-count cells is violated, I apply Fisher's exact test. Both for Pearson's χ^2 tests and for Fisher's exact tests, I indicate confidence intervals if p values are close to the thresholds, calculating Monte Carlo significances (2-sided) based on 10 000 sampled tables.

Indicating effect sizes represents an additional refinement. Effect sizes of nominal-to-nominal comparisons with more than 2×2 categories may be estimated using Cramér's V (Backhaus et al., 2013, p. 316), which I here denote V_C. Cohen (1988) suggests $V_C = .1$ a small, $V_C = .3$ a medium, and $V_C = .5$ a large effect. In the results, I refer to this interpretation scale.

The refined categorization approach may overcome some drawbacks of Wrzesniewski et al.'s publication, but it has undeniable limits. Because each additional control variable needs an additional level in cross-tables, cell counts drop quickly. For instance, comparing the 4 unambiguous orientation

types for each of the 3 subsamples and 4 age cohorts separately requires $4 \times 3 \times 4 = 48$ cells. Considering 5 educational levels additionally would boost the number of cells to 190. Using this approach, test power and effect sizes suffer from increasing cell numbers. Thus, where multiple control variables are needed, correlation comes as a valuable alternative.

For hypotheses 6.4 to 6.8, this is not an issue. Furthermore, hypotheses 6.1 to 6.3 were tested using regression equations. Thus, I apply the refined categorization approach to test hypotheses 6.4 to 6.8. Nevertheless, results using the correlation technique are provided, to compare the explorative findings (e. g., for educational background *EDUC*, or work satisfaction *WS*).

6.3.2.2 Correlation technique. The correlation technique has three advantages. First, data from mixed and indifferent types are not excluded as in the categorization approach. Second, correlation takes into account the strength of an individual's accordance with the ideal type. In the categorization method, it does not matter whether an individual rates his primary orientation high or medium, as long as the other ratings are lower. Third, it allows for multiple controlling, even in cases where sample sizes do not allow for multi-level cross-tables in the refined categorization technique.

Preliminary data evaluation revealed that results are biased by some general tendency of how strongly individuals identify with the descriptions in the 4 items – or, to put it another way, how critical they are in comparing themselves to the descriptions in the measurement. This becomes apparent in the descriptive correlation table 6.4, where all 4 orientations correlate negatively with the army-life balance scale. As a remedy, I construct an auxiliary variable *work orientation strength WOS*. It turns out that controlling for *WOS* cancels out the apparent tendencies to rate all orientations high, making the results indeed more meaningful.[88] Therefore, I suggest the following

> **Definition 6.4:** An individual's work orientation strength *WOS* is the arithmetic mean of his ratings of work orientations.

Cronbach's $\alpha = -.024$ does not suggest this is a meaningful scale, as for instance «identity strength» would be; however, testing the real nature of *WOS* goes beyond the present study. Thus, I refer to it as an auxiliary, that is technical variable only.

6.3.2.3 Regression approach. According to chapter 6.2.3, I suggest the different work orientations WO_k to be predictors of perceived promised inducements P_ℓ – the cross-sectional study design notwithstanding. Accordingly, regression analysis with $\sum_{k=jb,\,cr,\,pn,\,cg} WO_k$ as independent variables and only one P_ℓ, $\ell \in \{\mathrm{t}, \mathrm{r}, \mathrm{i}\}$ as dependent variable allows studying the simultaneous impacts of several work orientations in one psychological contract layer.

88 I deny that this is some sort of illegitimate HARKing, that is *Hypothesizing After the Results are Known* (Kerr, 1998). Rather, this is TAPPing, *Technically Adapting based on Preliminary Perceptions*, which I consider legitimate.

Thus, hypotheses 6.1 and 6.2 are tested using the following regression equation:

$$P_\ell = b_0 + \sum_{i=1}^{m} b_i c_i + \sum_{k=jb,\,cr,\,pn,\,cg} b_k WO_k + e\,, \tag{6.1}$$

with m control variables c_i. Of these, social desirability (Paulhus, 1984) is a particular issue, due to social pressures with regard to the «right» orientation. For instance, Baumeister (1991) mentions that «to fail to pursue one's Career» (p. 124) may come close to an offense in some of contemporary organizations. In the military context, the term Careerist has supposedly negative connotations (Janowitz, 1961), and the institutional (Moskos, 1977b), that is Calling and Profession orientations, are more likely to represent the normative ideal type. Thus, to control for potential peer pressure towards the «right» orientation, I measure and integrate social desirability as a control variable.

Hypothesis 6.3, too, is best tested using a regression model, for it investigates the direct impact of one orientation on one outcome variable, rather than comparing frequencies. At the same time, this offers the researcher an opportunity to directly compare the categorization technique with the correlation technique: The categorization technique corresponds to an inclusion of the dummy variable δ_{cg}, but the correlation technique equates to the inclusion of the variable WO_{cg} and the auxiliary variable WOS. Thus I set up two related, yet different regression models. For both models, control variables are integrated first.

Only a few studies have directly investigated the impact of age on work-life balance, or army-life balance ALB, as I term it here. Yet there is some evidence that ALB tends to form a ∪-shaped curve with respect to age (e. g., Grzywacz et al., 2002), meaning ALB is lowest in mid-career. Thus, I introduce age both as a linear AGE and as a quadratic term AGE^2. Furthermore, meta-analytic findings revealed that higher job status is associated ($r_c = .22$) with higher working hours (Ng & Feldman, 2008, p. 688),[89] leading to more work-family conflicts (Byron, 2005). Thus, I include occupational status as an additional control. Therefore, a wage brackets variable LK is introduced for the military professionals and the civilian employees subsample, and self-reported $WAGE$ (*nota bene* outside the Swiss Armed Forces) for the senior active reservists. In addition, I include the cultural dummy δ_{latin}. because French-speaking Switzerland scores significantly lower in «performance orientation (practice)» than German-speaking Switzerland (House et al., 2004, p. 25), possibly affecting army-life balance (Byron, 2005).

In contrast, I deliberately exclude potential control variables, such as the above mentioned, plausible control variable of working hours. Working hours are known to be a main predictor of ALB (White, Hill, McGovern, Mills, & Smeaton, 2003; Byron, 2005), but it may likely – and more directly – mediate the effect of work orientations on army-life balance. Also, I do not integrate a dummy for having children, because having children could potentially be driven by work orientations, too. For instance, Careerists or the Calling oriented may have less children. Thus, this inclusion would possibly confound the effect on

89 An enlightening model for the various reasons behind has been proposed by Feldman (2002).

ALB. Furthermore, having (young) children has lost importance as a predictor for work-family conflicts in the past years (White et al., 2003).

To summarize, the control model reads

$$WLB = b_0 + b_1 AGE + b_2 AGE^2 + b_3 LK + e \tag{6.2}$$

for employees. For senior active reservists, *LK* replaces *WAGE* in this and the next three equations.

The second step was to introduce Calling according to the categorization method, that is using a dummy variable δ_{cg} coded 1 for Calling types and 0 else:

$$WLB = b_0 + b_1 AGE + b_2 AGE^2 + b_3 LK + b_4 \delta_{cg} + e\,. \tag{6.3}$$

In this equation, b_4 is the effect of the Calling orientation on army-life balance. Alternatively, I introduce Calling according to the correlation technique, that is as the original 4-point Likert scale WO_{cg}:

$$WLB = b_0 + b_1 AGE + b_2 AGE^2 + b_3 LK \qquad + b_5 WO_{cg} + e\,. \tag{6.3a}$$

Now, to fully simulate the correlation technique, I include the auxiliary variable work orientation strength *WOS*:

$$WLB = b_0 + b_1 AGE + b_2 AGE^2 + b_3 LK \qquad + b_5 WO_{cg} + b_6 WOS + e\,. \tag{6.4}$$

If b_4 of equation (6.2) and b_5 of equation (6.4) yield comparable results, this buttresses the equivalence of the categorization and the correlation technique. In terms of magnitude, b_5 is expected to be stronger, because the correlation technique accounts for more variance in Calling than the categorization technique.

6.4 Results

The results section opens with chapter 6.4.1 *descriptive findings*, providing preliminary results for hypotheses 6.1 to 6.4 and comparing frequencies in work orientation of the WO3 and the WO4. The next chapter 6.4.2 investigates *relationships* between psychological contracts and work orientations, testing hypotheses 6.1 and 6.2. Chapter 6.4.3 reveals *antecedents and outcomes* exploratively, including formal testing of the army-life balance hypothesis 6.3. Chapter 6.4.4 focusses on differences *specific to the Swiss Armed Forces*.

6.4.1 Descriptive findings of work orientation

Work orientation items *WO* were placed in the middle of the questionnaire. Attrition is documented in table 3.15 and is of no concern (see chapter 3.5.3). Of the 2 792 participants who reached this part of the survey, 2 761 or 98.9% answered at least 1 *WO* item, 2 750 (98.5%) at least 2 items, 2 742 (98.2%) at least 3 items, and 2 694 (96.4%) completed all 4 items.

Items were randomly presented on single pages, to reduce order effects (Fraley, 2007, p. 132) and to balance attrition between items. Accordingly, missings varied between 51 and 59 with R. J. Little's (1988) MCAR test insignificant for the set of 4 items ($\chi^2(26) = 32.253$, $p = .185$), indicating that data are missing completely at random (MCAR).

Multiple imputation (MI) was performed according to chapter 3.7. All of the $n = 2\,792$ participants were included for MI. WO_j were constrained to integers, to allow for proper categorization. Single-item measures suggested a more conservative threshold. Thus, after MI, I removed all participants with originally more than one missing in WO_j, leaving $n = 2\,742$ participants for hypothesis testing and explorative findings.

Pearson correlations in table 6.4 yield a first impression of the interrelations between *WO* types, of the relation to the psychological contract construct, of differences in suggested outcomes, and of sample specific findings. The following paragraphs present these aspects. Further, differences in scale reliabilities (Cronbach's α) vary quite a bit. These reliabilities are discussed in chapter 3.6 for SDE, WS, TI, WE, and ALB, and in chapter 4.5.1 for P, respectively.

Correlations in table 6.4 corroborate the independence of the four work orientations, anticipate exploratory findings concerning outcomes, provide preliminary insights with regard to some hypotheses, and buttress inclusion of certain control variables. The next four paragraphs clarify these findings.

Correlations between *WO* dimensions are highly significant ($p < .001$ for all but one relation), given the large sample size, but small to moderate (Cohen, 1988) in size, with $|r| < .2$. Thus, no pair of work orientations is markedly redundant or antipodal, supporting the distinctiveness of all four work orientations. WO_{jb} and WO_{cg} are inversely related, which is consistent with Wrzesniewski et al.'s (1997) findings. The means of work orientations differ strongly. In particular, the high mean for WO_{pn} raises issues about scale validity and generalizability; both will be addressed in the limitations chapter 6.5.3.

Table 6.4: Descriptives and Pearson correlations[a] for work orientations WO, social desirability, army-life balance, work satisfaction, and promised inducements P of psychological contract

	WO_{jb}	WO_{cr}	WO_{cg}	WO_{pn}	SDE	WOS	WS	TI	WE	ALB	δ_{Pro}	δ_{Civ}	δ_{Res}	P_{trans}	P_{relat}	P_{ideat}	$P_{t\text{-}cont}$
WO_{jb}	–																
WO_{cr}	.124***	–															
WO_{cg}	−.194***	.045*	–														
WO_{pn}	−.170***	−.072***	.185***	–													
SDE	−.056**	−.096***	.059**	.104***	(.540)												
WOS	.330***	.619***	.552***	.448***	.000	(−.024)[c]											
WS	−.279***	−.169***	.126***	.132***	.042*	−.092***	–										
TI	.235***	.254***	−.125***	−.095***	−.065**	.135***	−.519***	(.717)									
WE	−.174***	−.051**	.170***	.193***	.313***	.073***	.243***	−.153***	(.904)								
ALB	−.111***	−.037†	−.150***	−.083***	−.050**	−.188***	.246***	−.218***	−.028	(.892)							
δ_{Pro}	−.002	−.122***	−.024	.145***	.056**	−.016	−.008	−.005	.082***	−.184***	–						
δ_{Civ}	.027	−.135***	−.048*	−.084***	.106***	−.130***	.098***	.005	.071***	.098***	−.547***	–					
δ_{Res}	−.026	.269***	.076***	−.064***	−.169***	.153***	−.094***	–[d]	−.161***	.090***	−.476***	−.476***	–				
P_{trans}	.033†	.035†	−.063**	.021	.165***	.011	−.067***	.031	.197***	−.044*	.054**	.075***	−.135***	(.582)			
P_{relat}	.036†	.014	−.024	.043*	.154***	.031	−.074***	.070**	.187***	−.077***	.155***	.064***	−.230***	.414***	(.826)		
P_{ideat}	−.073***	−.016	.054**	.128***	.095***	.046*	.098***	−.041†	.185***	−.013	.055**	.013	−.071***	.159***	.164***	(.900)	
$P_{t\text{-}cont}$	−.006	.082***	−.017	.038*	.115***	.053**	−.047*	.023	.201***	−.023	.054**	−.147***	.097***	.812***	.331***	.164***	(.608)
Min	0.000	0.000	0.000	0.000	2.000	0.000	1.000	1.000	1.000	1.000	.000	.000	.000	−1.600	−2.000	−2.000	−2.000
Mean	0.514	1.205	1.381	2.223	4.915	1.331	7.382	2.265	5.225	4.029	.353	.354	.293	0.931	0.644	0.905	1.241
Max	3.000	3.000	3.000	3.000	6.000	2.750	10.000	6.000	6.000	6.000	1.000	1.000	1.000	2.000	2.000	2.000	2.000
S. D.	0.753	0.982	0.899	0.798	0.808	0.428	1.638	1.177	0.545	1.164	.478	.478	.455	0.584	0.741	0.886	0.621

[a] $n = 1\,939$ for correlations including TI (see footnote [d]). $n = 2742$ for all other correlations.
[b] Scale reliabilities (Cronbach's α) along the diagonal in (parentheses).
[c] Cronbach's α is negative due to negative average covariance among items; WOS is an auxiliary variable and not a scale.
[d] TI not measured for senior active reservists.
† $p < .1$, $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$ (2-tailed).

Work satisfaction, turnover intention, and work effort correlate with work orientations according to expectations. WO_{jb} and WO_{cr} are associated with negative outcomes (low JS, high TI, low WE), WO_{cg} and WO_{pn} with positive outcomes (high JS, low TI, high WE). These findings are in line with previous findings (Wrzesniewski et al., 1997; Caforio & Nuciari, 1994).

«Diagonal» correlations, linking work orientations WO with the respective promised inducements P according to proposition 6.1, yield only marginal support for hypotheses 6.1 and 6.2. Job and Calling are inversely related, according to Wrzesniewski et al. (1997). Accordingly, P_{ideat} and P_{trans} correlate negatively – and even stronger – with the inverse orientations WO_{jb} and WO_{cg}. Correlations between WO_j and subsample dummies, preceding hypothesis 6.4, accord with expectations for WO_{cr} and WO_{pn}, but not for WO_{jb}. Army-life balance ALB negatively correlates with *all* orientations. This counterintuitive finding was the reason I defined work orientation strength WOS in definition 6.4.

Cronbach's $\alpha = -.024$ suggests WOS is not a proper scale, but only an auxiliary variable with no meaning of its own. Social desirability SDE varies with work orientations as suggested; individuals tend to deny Job and Career, but claim Calling and Profession orientations. These correlations buttress inclusion of SDE as a control variable.

To assess the effect of integrating the fourth, that is the Profession orientation, I compare work orientation frequencies for both the WO3 and the WO4, for each subsample separately (see table 6.5). This comparison yields four notable findings.

First, by introducing pn, the share of unambiguous types decreases slightly, the share of mixed types increases, and the share of indifferent types decreases strongly. This is conceivable; for each individual, adding a fourth type reduces the probability that a single orientation dominates, unless the new orientation covaries negatively with all previous orientations. Additionally, this expansion reduces the probability that all orientations are equally rated. In particular, senior active reservists become less unambiguous, dropping from 69.9% to 59.6%. However, this decline does not indicate that they have more difficulties to identify with work roles than employees; WOS, defined as the average of all orientations, is significantly ($p < .001$) higher for senior active reservists than for the other subsamples, according to post-hoc tests with Bonferroni correction (Bohrer, Chow, Faith, Joshi, & Wu, 1981). Thus, WO4 seems applicable to all subsamples.

Second, regarding changes *within* unambiguous types, each of the original types loses at least 50%, for any subsample – up to as much as 87.9% of cg among military professionals– when switching from WO3 to WO4. Thus, introducing pn mainly impairs cg, which is in line with the comparatively strong correlation between WO_{cg} and WO_{pn} (see table 6.4). Apparently, these orientations are akin.

Third, the most frequent type is cg in the WO3, but pn in the WO4. Yet pn has an absolute majority among military professionals and a relative majority among the other subsamples. This raises concerns about the item. Contrastingly, jb is least frequent, considerably less than Wrzesniewski et al. (1997) reported (22.4%), even in the WO3. However, Wrzesniewski et al. found jb to be less prevalent for high occupational status. Thus the sample, comprising only seniors, may induce both low jb and high pn.

Table 6.5: Frequencies of the work orientations according to Wrzesniewski et al.'s (1997) work orientation triad (WO3) and the suggested tetrad (WO4).

Type	Frequency	Subsample						Total	
		Professionals		Civilians		Reservists			
		WO3	WO4	WO3	WO4	WO3	WO4	WO3	WO4
unambiguous	Count	658^{a}	648^{A}	666^{a}	$617^{A,B}$	561^{a}	479^{B}	1 885	1 744
	%	67.9%	66.9%	68.7%	63.6%	69.9%	59.6%	68.7%	63.6%
jb	Count	$69^{a,b}$	21^{A}	83^{b}	30^{A}	40^{a}	17^{A}	192	68
	%	7.1%	2.2%	8.6%	3.1%	5.0%	2.1%	7.0%	2.5%
cr	Count	200^{a}	50^{A}	195^{a}	65^{A}	282^{b}	130^{B}	677	245
	%	20.6%	5.2%	20.1%	6.7%	35.1%	16.2%	24.7%	8.9%
cg	Count	389^{a}	47^{A}	388^{a}	76^{B}	239^{b}	61^{B}	1 016	184
	%	40.1%	4.9%	40.0%	7.8%	29.8%	7.6%	37.1%	6.7%
pn	Count		530^{A}		446^{B}		271^{C}		1 247
	%		54.7%		46.0%		33.7%		45.5%
mixed	Count	228^{a}	308^{A}	219^{a}	$337^{A,B}$	204^{a}	317^{B}	651	962
	%	23.5%	31.8%	22.6%	34.7%	25.4%	39.5%	23.7%	35.1%
jb-cr	Count	37^{a}	5^{A}	43^{a}	$15^{A,B}$	30^{A}	14^{B}	110	34
	%	3.8%	0.5%	4.4%	1.5%	3.7%	1.7%	4.0%	1.2%
jb-cg	Count	37^{a}	1^{A}	40^{a}	2^{A}	13^{b}	1^{A}	90	4
	%	3.8%	0.1%	4.1%	0.2%	1.6%	0.1%	3.3%	0.1%
cr-cg	Count	$154^{a,b}$	9^{A}	136^{b}	19^{A}	161^{a}	32^{B}	451	60
	%	15.9%	0.9%	14.0%	2.0%	20.0%	4.0%	16.4%	2.2%
jb-pn	Count		25^{A}		27^{A}		14^{A}		66
	%		2.6%		2.8%		1.7%		2.4%
cr-pn	Count		77^{A}		74^{A}		97^{B}		248
	%		7.9%		7.6%		12.1%		9.0%
cg-pn	Count		140^{A}		128^{A}		94^{A}		362
	%		14.4%		13.2%		11.7%		13.2%
jb-cr-cg †	Count		2^{A}		3^{A}		0^{A}		5
	%		0.2%		0.3%		0.0%		0.2%
jb-cr-pn	Count		9^{A}		12^{A}		9^{A}		30
	%		0.9%		1.2%		1.1%		1.1%
jb-cg-pn	Count		$7^{A,B}$		17^{B}		2^{A}		26
	%		0.7%		1.8%		0.2%		0.9%
cr-cg-pn	Count		33^{A}		40^{A}		54^{B}		127
	%		3.4%		4.1%		6.7%		4.6%
indifferent	Count	83^{a}	13^{A}	85^{a}	16^{A}	38^{b}	7^{A}	206	36
	%	8.6%	1.3%	8.8%	1.6%	4.7%	0.9%	7.5%	1.3%
All types	Count	969	969	970	970	803	803	2 742	2 742
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

^{a,b} Lower case letters denote significant ($p < .05$) differences of triadic types between subsamples.
^{A,B,C} Upper case letters denote significant ($p < .05$) differences of tetradic types between subsamples.
† The jb-cr-cg-combination is classified as *indifferent* in the triad, but *mixed* in the tetrad.

Fourth, and consistently, jb-free combinations dominate within *mixed* types. The single most frequent mixed type is cg-pn for employees, but cr-pn for reservists, in line with the prevalences for unambiguous types. Overall, frequencies among mixed types correspond to the prevalences among unambiguous types and correlations (table 6.4); there is no noteworthy exotic mixed type.

Final conclusions are only drawn in the discussions chapter 6.5, but two findings are relevant to further exploration. First, the WO4 seems feasible for hypothesis testing. Correlations and prevalences include neither contradictions nor fallacies, apart from the issue regarding ALB, which required to control for WOS (see definition 6.4). Second, the high approval rating for the Profession orientation substantiates inclusion of this new orientation to cover the present sample. However, whether this high approval is only characteristic for the sample, or is also a shortcoming of the measure, needs to be addressed in the limitations chapter 6.5.3.

6.4.2 The relationship between psychological contract and work orientation

Making proposition 6.1 explicit, hypothesis 6.1 suggests Job, Career, and Calling orientations are positively related to transactional, relational, and ideational promised inducements in terms of the psychological contract. Table 6.6 presents the regression models according to equation (6.1). First, control variables are determined. By this measure, work orientation strength WOS is out of the question, because it is a perfect linear combination of the 4 orientations and would hence infer irresolvable multicollinearity. Nevertheless, including all 4 orientations implicitly covers the concept of WOS.

According to chapter 4.4.2, AGE, $GENDER$, and $EDUC$, which are likely to be exogenous variables not influenced by work orientations, impact promised inducements. Thus, as potential common latent factors, these variables need to be controlled for. In addition, a dummy variable δ_{latin} is included to cover the cultural aspect of identity. $GENDER$ appears to be non-significant as a predictor, and is again removed. Although AGE and $EDUC$ do not impact all P layers, they are retained in every model to ensure comparability. Moreover, dummy variables for 2 of the 3 subsamples are included, civilian employees being the baseline group, to present the most generalizable findings. Furthermore, SDE is included, given the apparent (table 6.4) social desirability bias within work orientations.

Table 6.6 presents all three models. The impact of SDE on promised inducements P_j is highly ($p < .001$) significant and positive, which is puzzling. Coefficients of subsample dummies $\delta_{Pro}, \delta_{Res}$ reflect findings regarding hypothesis 4.3 in chapter 4.4.1. The next three paragraphs investigate each contract layer. After the controls (step 1), the presumably related work orientation is introduced (step 2). Step 3 then includes the other 3 work orientations.

WO_{jb} explains a significant ($p < .05$), but very small ($\beta = 0.043$) amount of transactional promises P_{trans}, as little as 0.2% of total variance. Adding the other 3 orientations, WO_{jb} loses significance ($p = .104$) but the other orientations become significant ($p < .01$) predictors of transactional promises, in particular WO_{cg} with $\beta = -0.070$. Thus, hypothesis 6.1.a is only partly supported.

WO_{cr} predicts a highly significant ($p < .001$), yet still small ($\beta = 0.086$) share of relational promises P_{relat}, explaining 0.6% of total variance. Adding the other orientations in yields minor contributions of

Table 6.6: Hierarchical polynomial regression[a] of promised inducements P_j on different work orientations WO_k.

	transactional promises P_{trans}			relational promises P_{relat}			ideational promises P_{ideat}		
Step→	1	2	3	1	2	3	1	2	3
SDE	0.116***	0.119***	0.119***	0.091***	0.093***	0.093***	0.079***	0.075***	0.062**
AGE	−0.106***	−0.107***	−0.095***	−0.016	0.009	0.003	−0.026	−.025	−.031
EDUC	−0.099***	−0.095***	−0.103***	−0.011	−0.015	−0.016	−0.024	−.026	−0.043*
δ_{latin}	0.198***	0.201***	0.204***	0.166***	0.165***	0.171***	0.049*	0.049*	0.055**
δ_{Pro}	−0.067**	−0.066**	−0.072***	0.045*	0.052*	0.044*	0.016	.015	−.007
δ_{Res}	−0.178***	−0.177***	−0.180***	−0.201***	−0.207***	−0.208***	−0.057*	−0.061*	−0.068**
WO_{jb}		0.043*	0.031†			0.040*			−0.048*
WO_{cr}			0.063**		0.086***	0.082***			.012
WO_{cg}			−0.070***			−0.020		0.053**	.023
WO_{pn}			0.059**			0.041*			0.116***
R^2	.098	.100	.109	.097	.103	.106	.016	.019	.035
ΔR^2	.098	.002	.009	.097	.006	.003	.016	.003	.016
F_{inc}	49.436***	5.542*	9.675***	49.012***	19.438***	3.079*	7.620***	7.876**	14.829***

[a] $n = 2\,742$.
† $p = .104$, $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$ (2-tailed).

WO_{jb} and WO_{pn}, but does not compromise the suggested main effect. Therefore, hypothesis 6.1.b is supported.

WO_{cg} predicts a strongly significant ($p < .01$), but again smaller ($\beta = 0.053$) share of ideational promises P_{ideat} ($\Delta R^2 = 0.3\%$). Furthermore, the effect vanishes when the other orientations are introduced. It is notable that not only the (closely related) WO_{pn} contributes comparatively strong, but WO_{jb} becomes a significant ($p < .05$) negative predictor of P_{ideat}. Consequently, hypothesis 6.1.c is only partly supported.

To summarize, the relations between of Wrzesniewski et al.'s (1997) orientations and psychological contract layers match Thompson and Bunderson's (2003) suggestions, but include only very small effect sizes. The effect remains stable for the Career orientation, but switches between Job and Calling when introducing all orientations. This in line with Wrzesniewski et al., who found Job and Calling to be inversely related. Thus, the isolated effects (step 2) meet the predictions, but the combined effects (step 3) conform only indirectly, yielding partial support for hypothesis 6.1.

In addition, hypothesis 6.2 tests the effect of the Profession orientation on the transactional-content sub-factor of transactional promised inducements. Table 6.7 reveals that both isolated (step 2) and combined (step 3) effects are in line with predictions, although explained variances are again very low, $\Delta R^2 = .003$ and .004, respectively. Of note, the coefficient of WO_{cg} in step 3 is opposite in sign to WO_{pn}, substantiating the distinctness of the Calling and the Profession orientation.

In a nutshell, the findings support the claim that Wrzesniewski et al.'s (1997) work orientations are theoretical cousins of the psychological contract (Thompson & Bunderson, 2003), but the effects are very

Table 6.7: Hierarchical polynomial regression[a] of transactional-content promised inducements $P_{\text{t-cont}}$ on different work orientations WO_k.

	transactional-content promises $P_{\text{t-cont}}$		
Step→	1	2	3
SDE	0.104***	0.098***	0.102***
AGE	−0.099***	−0.104***	−0.092***
$EDUC$	−0.085***	−0.091***	−0.092***
δ_{latin}	0.227***	0.232***	0.233***
δ_{Pro}	0.078***	0.067**	0.069**
δ_{Res}	0.121***	0.118***	0.117***
WO_{jb}			.010
WO_{cr}			0.047*
WO_{cg}			−0.049**
WO_{pn}		0.056**	0.069***
R^2	.108	.111	.116
ΔR^2	.108	.003	.004
F_{inc}	55.355***	9.051**	4.561**

[a] $n = 2\,742$.
† $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$ (2-tailed).

small, and intertwined for the Job and the Calling orientation. Chapter 6.5.2 provides a discussion of this.

6.4.3 Antecedents and outcomes of work orientation

This chapter starts with exploratory findings regarding the antecedents and outcomes of work orientations, using a refined variant of Wrzesniewski et al.'s (1997) categorization technique. Next, the findings are reproduced, relying on the correlation technique, to compare both approaches. To close, linear regression is used to test hypothesis 6.3. This is done in two ways, emulating both the categorization and the correlation technique, yielding additional support to the equivalence of both approaches.

The results both for the WO3 (table 6.8) and the WO4 (table 6.9) are provided, to allow for comparisons between them, and with the previous literature. Categorization technique implies that mixed and indifferent types are excluded from the analysis. Consequently, the sample size drops to $n = 1\,885$ for WO3, and to $n = 1\,744$ for WO4.

Table 6.8 presents the mean differences for antecedents and outcomes of the WO3, according to the categorization technique. The next paragraphs provide noticeable findings with regard to demographic continuous variables, demographic dummy variables, and suggested outcomes. Results are discussed in chapter 6.5.1.

In terms of SDE, cr types report the lowest mean, indicating that there is a social desirability bias against careerism. Regarding AGE, cr types are 7.99 and 6.19 years younger than jb and cg types, which is close to Wrzesniewski et al. reported differences of 6.1 and 7.8 years – *nota bene* in 1997. The differences

Table 6.8: Differences in antecedents and outcomes of work orientations according to Wrzesniewski et al.'s (1997) triad.

	All types			jb	cr	cg	*F*-test for differences			
	Min	Mean	Max	Mean	Mean	Mean	$df^{\dagger}$	$df^{\ddagger}$	F	p
SDE	2	4.93	6	$4.93^{g,h}$	4.79^{g}	5.03^{h}	2	1 882	17.820	.000
WOS	0.33	1.04	2.33	1.09^{g}	1.18^{g}	0.94^{h}	2	1 882	58.632	.000
AGE	19.84	40.11	64.77	43.05^{g}	36.06^{h}	42.25^{g}	2	1 882	73.695	.000
EDUC	4	6.69	8	6.47^{d}	6.79^{e}	$6.65^{d,e}$	2	1 882	5.516	.004
RANK	1	15.48	32	$14.59^{a,b}$	15.02^{a}	15.96^{b}	2	1 882	4.377	.013
LK	9	20.80	37	$20.54^{g,h}$	19.95^{g}	21.29^{h}	2	1 321	10.397	.000
δ_{children}	0	.50	1	$.55^{g}$	$.38^{h}$	$.58^{g}$	2	1 816	32.617	.000
δ_{married} [§]	0	.50	1	$.53^{d,g,h}$	$.41^{e,g}$	$.56^{d,h}$	2	1 882	19.503	.000
δ_{divorced}	0	.09	1	$.14^{a}$	$.06^{b}$	$.09^{a,b}$	2	1 882	5.655	.004
δ_{latin}	0	.26	1	$.16^{g}$	$.28^{h}$	$.27^{h}$	2	1 882	6.462	.002
WS	1	7.39	10	6.27^{g}	7.07^{h}	7.82^{i}	2	1 882	97.878	.000
TI	1	2.26	6	2.77^{g}	2.70^{g}	1.94^{h}	2	1 321	98.581	.000
WE	1	5.24	6	$5.01^{d,g}$	$5.17^{e,g}$	$5.33^{f,h}$	2	1 882	38.083	.000
ALB	1	3.99	6	$3.88^{a,e,f}$	$4.12^{b,e}$	$3.93^{a,f}$	2	1 882	6.465	.002
n		1 885		192	677	1 016				

^{a,b,c} These subscript letters denote subsets of *WO* types whose column proportions do not differ significantly from each other at the $\alpha = .05$ level.
^{d,e,f} Same as above, but at the $\alpha = .01$ level.
^{g,h,i} Same as above, but at the $\alpha = .001$ level. Where patterns are identical for different significance levels, only letters according to the lowest p are indicated.
† Degrees of freedom *between* types. Mixed and indifferent types were excluded from the analysis.
‡ Degrees of freedom *within* types. δ_{children} has lower within-df because some participants refused to answer. *TI* and *LK* not available for reservists.
[§] Reading example: cr types (*e*) are significantly less married than jb or cg types (*d*), a finding significant for $\alpha = .01$. For $\alpha = .001$, the mean difference between cr (*g*) and cg (*h*) still holds, but the difference between cr and jb is no longer significant (both *g*).

in highest education are smaller and do not exactly reproduce previous findings. In contrast, *RANK* and *LK* corresponds to Wrzesniewski et al.'s findings when military rank and wage bracket are identified with Wrzesniewski et al.'s social stand and occupational status.

At first glance, findings regarding marital status and family seem impressive. Only 38% of cr types – but 58% of cg types – have children, a highly significant ($p < .001$) difference implying that chances for having children are about 1.5 times as high when one is not a Career respondent. However, this finding uncovers the sharpest limitation of the categorization method; it is not surprising cr types are significantly less married and have fewer children, when they are more than 6 years younger, on average. However, divorce rates between jb and cg are stunningly different, and age differences may not account for the gap between jb and cg types. Only a refined technique may clarify these findings.

The differences in turnover intentions reflect Wrzesniewski et al.'s finding that cg types have significantly fewer missing days; absenteeism is a withdrawal behavior predicting turnover (e. g., Koslowsky, 2009; Berry, Lelchook, & Clark, 2012). In addition, the findings regarding work satisfaction are reproduced.

For table 6.9, the WO3 is expanded to the WO4. Introducing pn as a fourth type lowers the significance level of some findings; those regarding *EDUC*, *RANK*, and *ALB* even become non-significant. This happens due to lower type counts rather than changing means. In absolute numbers, some differences are even accentuated. For instance, the average *AGE* of cr decreases from 36.06 to 33.25 years, and the average *WS* for jb falls from 6.27 to 5.82 on a 10-point Likert scale. Overall, patterns between jb, cr, and cg within the WO4 are similar to those in the WO3.

Table 6.9: Differences in antecedents and outcomes of work orientations according to the suggested tetrad.

	All types			jb	cr	cg	pn	***F*-test for differences**			
	Min	Mean	Max	Mean	Mean	Mean	Mean	$df^{\dagger}$	$df^{\ddagger}$	F	p
SDE	2	4.93	6	$4.81^{a,b,d,e,g,h}$	$4.67^{a,d,g}$	$4.96^{b,e,g,h}$	$4.98^{b,e,h}$	3	1 740	10.260	.000
WOS	0.25	1.27	2.25	$1.27^{g,h}$	1.40^{g}	$1.29^{g,h}$	1.24^{h}	3	1 740	11.419	.000
AGE	19.84	40.65	64.77	40.80^{g}	33.25^{h}	40.61^{g}	42.10^{g}	3	1 740	45.900	.000
EDUC	4	6.68	8	6.38	6.69	6.53	6.71	3	1 740	2.437	.063
RANK	1	15.44	32	13.66	14.80	15.85	15.61	3	1 740	2.063	.103
LK	9	21.01	37	$19.51^{a,g,h}$	$19.33^{a,g}$	$20.56^{a,b,g,h}$	$21.34^{b,h}$	3	1 261	8.609	.000
δ_{children}	0	.52	1	$.50^{a,g,h}$	$.29^{b,g}$	$.52^{a,h}$	$.56^{a,h}$	3	1 687	20.533	.000
δ_{married}	0	.51	1	$.44^{a,b,g,h}$	$.34^{a,g}$	$.49^{b,g,h}$	$.56^{b,h}$	3	1 740	13.979	.000
δ_{divorced}	0	.09	1	$.16^{a,b}$	$.05^{a}$	$.07^{a,b}$	$.09^{b}$	3	1 740	3.605	.013
δ_{latin}	0	.26	1	$.13^{a,d}$	$.33^{b,e}$	$.31^{b,e}$	$.25^{b,d,e}$	3	1 740	4.773	.003
WS	1	7.42	10	$5.82^{d,g}$	$6.86^{e,g}$	$7.64^{f,h}$	$7.58^{f,h}$	3	1 740	37.793	.000
TI	1	2.22	6	$2.85^{d,g}$	$3.08^{d,g}$	$1.93^{e,h}$	$2.22^{e,g,h}$	3	1 261	33.871	.000
WE	1	5.23	6	$4.75^{d,g}$	$5.12^{e,g,h}$	$5.30^{f,h}$	$5.27^{f,h}$	3	1 740	26.397	.000
ALB	1	4.09	6	3.91	4.22	3.92	4.10	3	1 740	2.964	.031
n		1 744		68	245	184	1 247				

^{a,b,c} These subscript letters denote subsets of *WO* types whose column proportions do not differ significantly from each other at the $\alpha = .05$ level.
^{d,e,f} Same as above, but at the $\alpha = .01$ level.
^{g,h,i} Same as above, but at the $\alpha = .001$ level. Where patterns are identical for different significance levels, only letters according to the lowest p are indicated.
† Degrees of freedom *between* types. Mixed and indifferent types were excluded from the analysis.
‡ Degrees of freedom *within* types. δ_{children} has lower within-df because some participants refused answering. *TI* and *LK* not available for reservists.

With regard to characteristics (*AGE*, *LK*, and marital dummies) and outcomes (*WS*, *TI*, and *WE*), pn resembles cg. Nevertheless, findings in regression models (see table 6.6 and in particular table 6.7) support the assumption that these orientations differ in the mechanics behind them.

The correlation technique resolves the issue of confounding variables. According to chapter 6.3.2, both social desirability and work orientation strength need to be controlled for. In addition, findings of tables 6.8 and 6.9 suggest that age influences various outcomes. Thus, *AGE* is introduced as a third control variable. To compare their impact separately, the 3 controls *SDE*, *WOS*, and *AGE* are introduced stepwise. The result can be found in table 6.10.

The differences between categorization in table 6.9 and correlations in table 6.10 illustrate how correlations account for additional variance. For instance, the average age of cg types differs from

Table 6.10: Simple Pearson correlations and partial Pearson correlations[a] for the work orientations of the tetrad. «-» indicates that variable is controlled for.

				WO_{jb}				WO_{cr}				WO_{cg}				WO_{pn}			
df	2740	2739	2738	2737	2740	2739	2738	2737	2740	2739	2738	2737	2740	2739	2738	2737	2740	2739	2738	2737
WO_{cr}	.124***	.119***	−.117***	−.096***																
WO_{cg}	−.194***	−.191***	−.476***	−.483***	.045*	.051**	−.449***	−.453***												
WO_{pn}	−.170***	−.165***	−.372***	−.393***	−.072***	−.063**	−.490***	−.471***	.185***	.180***	−.093***	−.102***								
SDE	−.056**	-	-	-	−.096***	-	-	-	.059**	-	-	-	.104***	-	-	-				
WOS	.330***	.331***	-	-	.619***	.621***	-	-	.552***	.553***	-	-	.448***	.450***	-	-				
AGE	.020	.031	.093***	-	−.328***	−.318***	−.276***	-	−.040*	−.052**	.050**	-	.077***	.059**	.153***	-				
$EDUC$	−.084***	−.088***	−.120***	−.123***	.079***	.072***	0.033†	.044*	.044*	.049*	.009	.008	.091***	.099***	.074***	.070***				
$RANK$	−.066***	−.069***	−.096***	−.101***	−.008	−.013	−.067***	−.055**	.089***	.093***	.069***	.067***	.107***	.113***	.095***	.089***				
δ_{married}	−.023	−.018	.018	−.028	−.178***	−.169***	−.134***	−.010	−.026	−.032†	.031	.009	.048*	.037*	.095***	.028				
δ_{divorced}	.054**	.058**	.068***	.050**	−.069***	−.063***	−.064***	−.005	−.031	−.035†	−.029	−.040*	.025	.018	.031	−.002				
δ_{latin}	−.072***	−.064***	−.056**	−.050**	.022	.039*	.075***	.059**	.029	.019	.045*	.048*	−.060**	−.080***	−.073***	−.063**				
WS	−.279***	−.278***	−.263***	−.278***	−.169***	−.166***	−.139***	−.110***	.126***	.124***	.211***	.206***	.132***	.129***	.192***	.176***				
TI	.235***	.232***	.197***	.210***	.254***	.252***	.214***	.198***	−.125***	−.121***	−.241***	−.240***	−.095***	−.089***	−.175***	−.167***				
WE	−.174***	−.165***	−.203***	−.215***	−.051**	−.022	−.090***	−.063**	.170***	.160***	.141***	.136***	.193***	.170***	.152***	.138***				
ALB	−.111***	−.115***	−.056**	−.054**	−.037†	−.042*	.097***	.093***	−.150***	−.147***	−.053**	−.051**	−.083***	−.079***	.007	.012				

[a] $n = 2742$

the sample mean by only 0.04 years; in contrast, the correlation between age and WO_{cg} is small, but significant. Apart from the fact that WO_{cg} accounts for more variance, the correlation approach includes the complete sample ($n = 2\,742$), whereas the categorization approach keeps only a part of it ($n_{\text{unambiguous}} = 1\,744$).

Introducing SDE as a first control variable barely has an impact. However, introducing the second control WOS fundamentally alters findings. This is most striking with regard to ALB. Before the introduction of WOS, all four orientations were negatively correlated with ALB. Now, the relationship weakens for both WO_{jb} and WO_{cg}, becomes insignificant for WO_{pn}, and turns positive for WO_{cr}. This is now in line with the categorization method in table 6.9. However, in that table, the mean differences are insignificant, the tendencies are consistent with the findings of the correlation approach, when controlled for WOS. This gain in consistency occurs for all antecedents and outcomes, underscoring the importance of WOS as a control variable.

Next, AGE is introduced as a third control variable, affecting findings especially for the (clearly younger) cr type. Whereas before, Career oriented individuals married or divorced significantly less often, this has now been ruled out as an age effect. When controlling for age, WO_{cr} is no longer significantly correlated to marital dummies ($p > .05$). Notably, two correlations for the divorce dummy remain significant even when controlling for age. Namely, WO_{jb} is negatively, but WO_{cg} is positively related with δ_{divorced}. Chapter 6.5.1 discusses this and other findings.

The inclusion of all three control variables reveals that the Profession orientation is most associated with desirable outcomes, that is low turnover intentions, high work satisfaction, high work effort, and no decrease in army-life balance. On the other side, Job orientation is least desirable, with opposite outcomes. In these terms, Calling is close to Profession, but is less advantageous regarding army-life balance. Career is close to Job, but with a distinctively weaker negative correlations towards work satisfaction and work effort, and in fact a positive correlation with army-life balance. These findings are in line with the categorization results in table 6.9. Furthermore, age is controlled for in table 6.10.

To close this chapter on antecedents and outcomes, hypothesis 6.3 is tested formally. According to the categorization technique, mean differences in ALB are strongly significant ($p < .01$) for the triad, but they turn insignificant ($p > .05$) for the tetrad. In contrast, the correlation technique reports a strongly significant, but only very weak correlation between WO_{cg} and ALB, with $r = -.051$. Multiple regression answers the open question of how Calling is related to army-life balance, and provides a direct comparison of the categorization and the correlation approach.

Different control variables, namely wage brackets LK for employees, and income $WAGE$ outside the army for senior active reservists, suggest performing multiple regression analysis for the three subsamples separately (see table 6.11). Step 1 introduces control variables according to equation (6.2). Because control variables differ (LK vs. $WAGE$), each subsample is modeled separately. Step 2a, according to equation (6.3), tests hypothesis 6.3, emulating the categorization technique, that is by introducing Calling as a dummy variable δ_{cg}. An alternative regression emulates the correlation technique in two steps. Therefore, step 2b represents Calling by the Likert-scale variable WO_{cg}, as suggested by equa-

tion (6.3a). Next, step 3b controls for the auxiliary variable work orientation strength *WOS*, according to equation (6.4).

In step 2a, the regression model representing the categorization method, finds no significant ($p > .1$) effect of Calling types on army-life balance for employees, but a statistically significant ($p < .05$) and negative, though rather small effect for senior active reservists, which explains 0.7% of variance in ALB.

In step 2b, the regression model representing the correlation approach *without* *WOS* as a control variable, shows highly significant ($p < .001$) negative impacts with a considerably larger effect size. However, the same caveat is advisable, as in the correlation approach, before the introduction of *WOS* as a control, where all work orientations correlated negatively with ALB (tables 6.4 and 6.10).

Finally, in step 3b, the regression model representing the correlation approach *including* *WOS* as a control variable again turns the findings insignificant for military professionals and civilian employees, but it only weakly suppresses the effect of WO_{cg} for reservists. Thus, the findings simulating the partial correlation technique reproduce the findings of the categorization method (step 2a) for each of the three subsamples. The effect size is stronger in the correlation approach, because WO_{cg} contains more variance than δ_{cg}.

To conclude, hypothesis 6.3 is only partly supported, because the negative impact of Calling on army-life balance was proposed irrespective of the subsample, but was found for senior active reservists only. On the other hand, the testing yields strong support for the improved correlation approach, with the auxiliary variable work orientation strength *WOS* as an indispensable control for the correlation approach.

6.4.4 Work orientations in the Swiss Armed Forces

This section investigates the differences of work orientations within the armed forces. Hypothesis 6.4 suggests differences between the three subsamples. Hypothesis 6.5 expects age differences. Hypothesis 6.6 proposes differences in terms of branches and units. For senior active reservists, hypothesis 6.7 studies the distributions according to incomes outside the Swiss Armed Forces. Finally, hypothesis 6.8 suggests that different occupational titles lead to differences between language groups of military professionals.

Given the variables of interest, nominal-nominal comparisons seem more tangible than correlational analyses using numerous dummies. The only interval scale, age, is grouped on an ordinal scale, according to table 3.12 in chapter 3.5.3. Consequently, the categorization approach is applied throughout the chapter.

Hypothesis 6.4 suggests that three of the four orientations are more prevalent among one specific subsample, that is, Job among civilian employees, Career among senior active reservists, and Profession among military professionals. In contrast, there is no specific prediction with regard to the Calling orientation. Overall, subsample specific differences are evident, $\chi^2(10, n = 2\,742) = 130.146$, $p = 4.36 \cdot 10^{-23}$. Fisher's exact test reveals highly significant ($p < .001$) differences for all age classes, but insignificant ($p = .356$) differences for those > 50 years, where cell counts are comparatively small (only 19 senior active reservists).

Table 6.11: Hierarchical polynomial regression of army-life balance ALB for different subsamples, each with different operationalizations. In step 2a, Calling is introduced as a dummy variable. In step 2b, Calling is introduced as a scale variable instead, followed by the control variable work orientation strength WOS in step 3b.

	military professionals[a]				civilian employees[b]				senior active reservists[c]			
Step→	1	2a	2b	3b	1	2a	2b	3b	1	2a	2b	3b
AGE	$-0.481^{\dagger}$	$-0.494^{\dagger}$	-0.579^{*}	-0.582^{*}	-0.598^{*}	-0.600^{*}	-0.622^{*}	$-0.530^{\dagger}$	-0.842^{**}	-0.862^{**}	-0.886^{**}	-0.873^{**}
AGE^2	$0.474^{\dagger}$	$0.483^{\dagger}$	0.559^{*}	0.557^{*}	0.715^{*}	0.717^{*}	0.734^{*}	0.626^{*}	0.891^{**}	0.905^{**}	0.930^{**}	0.911^{**}
$LK/WAGE$	-0.136^{**}	-0.134^{**}	-0.123^{**}	-0.144^{***}	-0.145^{***}	-0.145	-0.136^{***}	-0.129^{***}	-0.102^{*}	$-0.087^{\dagger}$	-0.073	-0.076
δ_{latin}	-0.004	-0.005	-0.006	-0.018	-0.096^{**}	-0.097	-0.091^{**}	-0.112^{***}	-0.130^{***}	-0.127^{***}	-0.111^{**}	-0.112^{**}
δ_{cg}		-0.037				0.015				-0.082^{*}		
WO_{cg}			-0.107^{***}	0.008			-0.181^{***}	-0.044			-0.169^{***}	-0.137^{***}
WOS				-0.204^{***}				-0.242^{***}				-0.056
R^2	.029	.030	.040	.068	.043	.043	.076	.115	.037	.044	.065	.067
ΔR^2	.029	.001	.011	.028	.043	.000	.033	.039	.037	.007	.028	.003
F_{inc}	7.129^{***}	1.350	11.193^{***}	28.854^{***}	10.874^{***}	0.225	33.895^{***}	42.627^{***}	7.609^{***}	5.439^{*}	23.225^{***}	2.150

[a] $n = 969$.
[b] $n = 970$.
[c] $n = 803$.
$^{\dagger}p < .1$, $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$ (2-tailed).

Table 6.12: Frequencies of work orientations by subsample and age groups.

Age	Type	Frequency	Subsample			Total
			Pro.	Civ.	Res.	
$<$ 31 years	jb	Count	5^{a}	2^{a}	12^{a}	19
		%	2.6%	5.4%	3.0%	3.1%
	cr	Count	19^{a}	0^{a}	90^{b}	109
		%	10.1%	0.0%	22.8%	17.6%
	cg	Count	14^{a}	3^{a}	27^{a}	44
		%	7.4%	8.1%	6.9%	7.1%
	pn	Count	83^{a}	$14^{a,b}$	124^{b}	221
		%	43.9%	37.8%	31.5%	35.6%
31 – 40 years	jb	Count	4^{a}	5^{a}	5^{a}	14
		%	1.3%	2.3%	1.9%	1.8%
	cr	Count	16^{a}	32^{b}	33^{b}	81
		%	5.2%	14.8%	12.6%	10.3%
	cg	Count	13^{a}	14^{a}	17^{a}	44
		%	4.3%	6.5%	6.5%	5.6%
	pn	Count	164^{a}	73^{b}	83^{b}	320
		%	53.8%	33.8%	31.7%	40.9%
41 – 50 years	jb	Count	5^{a}	9^{a}	0^{a}	14
		%	1.7%	3.2%	0.0%	2.0%
	cr	Count	11^{a}	21^{a}	7^{a}	39
		%	3.6%	7.4%	5.5%	5.5%
	cg	Count	14^{a}	$19^{a,b}$	17^{b}	50
		%	4.6%	6.7%	13.3%	7.0%
	pn	Count	181^{a}	132^{b}	52^{b}	365
		%	59.9%	46.8%	40.6%	51.3%
$>$ 50 years	jb	Count	7^{a}	14^{a}	0^{a}	21
		%	4.0%	3.2%	0.0%	3.3%
	cr	Count	4^{a}	12^{a}	0^{a}	16
		%	2.3%	2.8%	0.0%	2.6%
	cg	Count	6^{a}	40^{b}	$0^{a,b}$	46
		%	3.5%	9.2%	0.0%	7.3%
	pn	Count	102^{a}	227^{a}	12^{a}	341
		%	59.0%	52.2%	63.2%	54.4%
All ages	Unambiguous types	Count	648	617	479	1 744
		%	66.9%	63.6%	59.7%	63.6%

^{a,b,c} These subscript letters denote subsets of *WO* types whose column proportions do not differ significantly from each other at the $\alpha = .05$ level.

Job orientation (hypothesis 6.4.a) is more frequent among civilian employees, although the difference is only significant ($p < .05$) in the WO3, but not in the WO4. Nevertheless, there are still 1.4 times as many Job types compared to military professionals, and 1.5 times compared to senior active reservists. An exploration within the age classes does not reveal further significant findings, but corroborates the general tendency, with the exception of those beyond 50 years of age, as table 6.12 shows.

In line with hypothesis 6.4.b, Career orientations are most prevalent among senior active reservists, 2.4 to 3.1 times more than among employees. The finding is biased by the different age distribution of subsamples (see table 3.12), yet it fully holds for those younger than 31 years, and still holds towards military professionals in the age group of the $31 - 40$ year olds (see table 6.12). However, for those older than 40 years, the differences become insignificant ($p > .05$).

With respect to Calling, no prediction was made due to possibly concurring effects. Explorative investigation yields some significant differences, but not for those younger than 41 years.

As suggested by hypothesis 6.4.c, Profession is significantly ($p < .05$) more prevalent among military professionals than among civilian employees and senior active reservists. However, the differences are again attenuated for older age classes, becoming insignificant ($p > .05$) for those above 50 years.

To conclude, hypothesis 6.4 is partly supported. With respect to Job, the counts are too low to yield significant findings, and for Career and Profession alike, differences are significant only for the younger age classes. Table 6.12 presents the counts by age groups. The overall differences can be found in table 6.5.

Table 6.13: Frequencies of the work orientations for different age groups and all subsamples.

Type	Frequency	Age in years				Total
		< 31	$31 - 40$	$41 - 50$	> 50	
jb	Count	19^{a}	14^{a}	14^{a}	21^{a}	68
	%	3.1%	1.8%	2.0%	3.3%	2.5%
cr	Count	109^{a}	81^{b}	39^{c}	16^{d}	245
	%	17.6%	10.3%	5.5%	2.6%	8.9%
cg	Count	44^{a}	44^{a}	50^{a}	46^{a}	184
	%	7.1%	5.6%	7.0%	7.3%	6.7%
pn	Count	221^{a}	320^{a}	365^{b}	341^{b}	1 247
	%	35.6%	40.9%	51.3%	54.4%	45.5%
mixed	Count	$224^{a,b}$	316^{b}	234^{a}	188^{a}	962
	%	36.1%	40.4%	32.9%	30.0%	35.1%
indifferent	Count	3^{a}	$8^{a,b}$	$10^{a,b}$	15^{b}	36
	%	0.5%	1.0%	1.4%	2.4%	1.3%
All types	Count	620	783	712	627	2 742
	%	22.6%	28.6%	26.0%	22.9%	100.0%

^{a,b,c,d} These subscript letters denote subsets of *WO* types whose column proportions do not differ significantly from each other at the $\alpha = .05$ level.

Anticipated by the findings in table 6.12, hypothesis 6.5 suggests age differences, irrespective of subsamples. Table 6.13 provides the according frequencies. In line with predictions, age differences are highly significant at the overall level ($\chi^2(15, n = 2742) = 130.186$, $p < .001$). Career frequencies decrease with increasing age, the differences being significant ($p < .05$) from each age group to the next. In a complementary manner, Profession prevalence increases with age, also in line with predictions. In contrast, Job and Calling prevalences do not vary with age. Overall, $V_C = .136$ indicates a small to medium effect size. The findings are substantiated by Fisher's exact tests for subsamples, and are significant for military professionals ($p < .01$), civilian employees ($p < .001$), and senior active reservists ($p < .001$). To summarize, hypothesis 6.5 is only partly supported.

Hypothesis 6.6.a tests the differences in work orientations regarding self-reported branch affiliation. Therefore, branches are classed into four branch categories, according to table 3.20 in chapter 3.6.4. As argued in chapter 6.2.5, the analysis is restricted to military professionals and civilian employees. According to Fisher's exact test, both military professionals ($p = .516$) and civilian employees ($p = .577$) are homogeneous across branches in terms of work orientation. Thus, hypothesis 6.6.a is not supported. The exemplary counts for military professionals can be found in table 6.14.

Table 6.14: Frequencies of the work orientations for military professionals in different branch categories. Overall differences are not significant ($p > .05$), and neither is any of the pairs.

Type	Frequency	Branch Category				Total
		C2I	C	CS	CSS	
jb	Count	1	7	5	3	16
	%	0.9%	2.5%	2.1%	1.6%	2.0%
cr	Count	5	13	16	12	46
	%	4.5%	4.7%	6.6%	6.4%	5.6%
cg	Count	6	9	10	15	40
	%	5.4%	3.2%	4.1%	8.0%	4.9%
pn	Count	62	159	138	95	454
	%	55.4%	57.0%	57.3%	50.5%	55.4%
mixed	Count	38	86	70	63	257
	%	33.9%	30.8%	29.0%	33.5%	31.3%
indifferent	Count	0	5	2	0	7
	%	0.0%	1.8%	0.8%	0.0%	0.9%
Total	Count	112	279	241	188	820
	%	13.7%	34.0%	29.4%	22.9%	100.0%

At the time of the survey, Swiss Armed Forces included 7 organizational units, directly reporting to the Chief of the Armed Forces. These units differ in terms of size, function, number of employees, and ratios between military professionals, civilian employees, and senior active reservists. As an example, 46.6% of the sample at hand work at the Land Forces (HE), but only 9.3% of the civilian employees. In

contrast, 37.7% of the participating civilian employees work in the Armed Forces Logistics Organization (LBA), but only 2.1% of the military professionals. These differences are not due to sample selection bias, but are representative (see table 3.13).

Table 6.15 presents the counts by organizational units and work orientations, based on the example of civilian employees. Staffs at Armed Forces level are merged into *HQ*, and Logistics and Command Support Organizations are merged into *Sup* to reduce the number of cells, and to increase cell counts. With Pearson's $\chi^2(20, n = 1\,919) = 25.569$, overall differences are nonsignificant ($p = .182$). Not a single pair of counts differs significantly across all types and units. Only slight differences, beyond statistical significant findings, point towards the expected direction. For instance, Profession is more prevalent among military professionals from the Armed Forces College (62.7%) than at HQ (53.8%), Air Force (54.1%), Land Force (54.5%), or Support Organizations (57.1%). However, due to the lack of significance, hypothesis 6.6.b is not supported.

Table 6.15: Frequencies of the work orientations for civilian employees in different organizational units. Overall differences are not significant, and neither is any of the pairs.

Type	Frequency	Summarized organizational units					Total
		HQ[a]	HKA[b]	LW	HE	Sup[c]	
jb	Count	7	1	5	2	14	29
	%	3.6%	3.3%	3.4%	2.2%	2.8%	3.0%
cr	Count	11	2	12	7	33	65
	%	5.7%	6.7%	8.1%	7.6%	6.7%	6.8%
cg	Count	16	3	4	8	44	75
	%	8.2%	10.0%	2.7%	8.7%	8.9%	7.8%
pn	Count	80	14	82	41	225	442
	%	41.2%	46.7%	55.0%	44.6%	45.4%	46.0%
mixed	Count	76	9	44	31	174	334
	%	39.2%	30.0%	29.5%	33.7%	35.1%	34.8%
indifferent	Count	4	1	2	3	6	16
	%	2.1%	3.3%	1.3%	3.3%	1.2%	1.7%
All types	Count	194	30	149	92	496	961
	%	20.2%	3.1%	15.5%	9.6%	51.6%	100.0%

[a] The Armed Forces Staff (A Stab) and the Armed Forces Joint Staff (FST A) are unified into «Headquarter (HQ)» to reduce the number of categories.
[b] German abbreviations for the organizational units directly reporting to the Chief of the Armed Forces; for details refer to chapter 2.1.1.
[c] The Armed Forces Logistics Organization (LBA) and the Armed Forces Command Support Organization (FUB) are unified into «Support Organizations (Sup)» to reduce the number of categories.

Hypothesis 6.7 suggests work orientations of senior active reservists depend on income. In line with this expectation, table 6.16 reveals how Career is 2.5 times as common among in the lowest income group as in the highest. In turn, Calling is 2.9 times as common in the highest as compared to the lowest income group. These differences are significant ($p < .05$). Job prevalences depend in a complementary fashion on income, again with a factor of 2.6 for the extreme income groups. However, due to low cell counts,

Table 6.16: Frequencies of the work orientations of senior active reservists for different wage groups.

Type	Frequency	Income in CHF per month					Total
		$< 4\,000$	$4\,000 - 5\,999$	$6\,000 - 7\,999$	$8\,000 - 9\,999$	$> 10\,000$	
jb	Count	6^{a}	2^{a}	5^{a}	2^{a}	2^{a}	17
	%	3.1%	1.3%	3.0%	1.8%	1.2%	2.1%
cr	Count	43^{a}	30^{a}	$28^{a,b}$	$14^{a,b}$	15^{b}	130
	%	22.2%	20.1%	16.6%	12.4%	8.9%	16.4%
cg	Count	10^{a}	$9^{a,b}$	$10^{a,b}$	$7^{a,b}$	25^{b}	61
	%	5.2%	6.0%	5.9%	6.2%	14.9%	7.7%
pn	Count	65^{a}	53^{a}	55^{a}	39^{a}	56^{a}	268
	%	33.5%	35.6%	32.5%	34.5%	33.3%	33.8%
mixed	Count	67^{a}	54^{a}	71^{a}	50^{a}	69^{a}	311
	%	34.5%	36.2%	42.0%	44.2%	41.1%	39.2%
indifferent	Count	3^{a}	1^{a}	0^{a}	1^{a}	1^{a}	6
	%	1.5%	0.7%	0.0%	0.9%	0.6%	0.8%
All types	Count	194	149	169	113	168	793
	%	24.5%	18.8%	21.3%	14.2%	21.2%	100.0%

^{a,b} These subscript letters denote subsets of *WO* types whose column proportions do not differ significantly from each other at the $\alpha = .05$ level.

the difference remains insignificant ($p > .05$). The overall difference is significant according to Fisher's exact test, $p = .022$, $\text{CI}_{99\%}[.018, .026]$, and of small effect size, $V_C = .105$, $p = .019$, $\text{CI}_{99\%}[.016, .023]$. To conclude, hypothesis 6.7 is clearly supported.

The final hypothesis 6.8 states that the occupational titles of military professionals, which differ substantially between German, French, and Italian, impact work orientations. Here, civilian employees serve as a control group. Overall, Fisher's exact test reveals that for military professionals, language-specific differences are strongly significant ($p = .008$, $\text{CI}_{99\%}[.006, .010]$), but for civilian employees, they are insignificant ($p = .123$, $\text{CI}_{99\%}[.115, 132]$).

At this point, I need to consider a potential sample selection bias, as found in chapter 3.5.1. Sample selection analysis revealed that among civilian employees, German speakers are less likely to participate, presumably because they were more strongly affected by authenticity rumors. Thus, this potential bias only affected the control group and should therefore not pose a direct threat to hypothesis testing in the present situation.

Career types are significantly ($p < .05$) more prevalent among French-speaking military professionals (9.4%) than among those of German mother tongue (4.1%), in line with predictions. The respective share among Italian speakers is even lower with 1.6%; however, the difference is non-significant ($p > .05$) due to low counts, including only 59 individuals or 7.2% of military professionals. For the control group of civilian employees, no difference is significant ($p < .05$). With regard to the Profession orientation, the share for Italian speakers is higher (64.4%) than for German (58.4%) and French speakers (52.5%). However, these differences are non-significant ($p > .05$), given the small subsample size. However, differences for civilian employees tend in the opposite direction, indicating a possibly culturally induced

bias towards zero. The effect size $V_C = .130$ is small to medium with $p = .005, \text{CI}_{99\%}[.003, .006]$. To conclude, hypothesis 6.8 is mostly, but not fully supported. Table 6.17 compares the counts and shares among military professionals and civilian employees for all orientations.

Table 6.17: Frequencies of the work orientations for military professionals and civilian employees with different mother tongues. Overall differences are significant ($p = .008$) for military professionals, but not for civilian employees ($p = .123$).

Type	Employee group	Frequency	Mother tongue			Total
			German	French	Italian	
jb	military professionals	Count	17^{a}	2^{a}	0^{a}	19
		%	2.9%	1.1%	0.0%	2.3%
	civilian employees	Count	26^{a}	3^{a}	0^{a}	29
		%	3.5%	1.7%	0.0%	3.0%
cr	military professionals	Count	15^{a}	17^{b}	$1^{a,b}$	33
		%	2.6%	9.4%	1.7%	4.0%
	civilian employees	Count	47^{a}	16^{a}	1^{a}	64
		%	6.4%	8.8%	2.3%	6.7%
cg	military professionals	Count	27^{a}	7^{a}	2^{a}	36
		%	4.6%	3.9%	3.4%	4.4%
	civilian employees	Count	51^{a}	19^{a}	6^{a}	76
		%	6.9%	10.5%	13.6%	7.9%
pn	military professionals	Count	341^{a}	95^{a}	38^{a}	474
		%	58.4%	52.5%	64.4%	57.5%
	civilian employees	Count	352^{a}	73^{a}	17^{a}	442
		%	47.8%	40.3%	38.6%	45.9%
mixed	military professionals	Count	178^{a}	54^{a}	18^{a}	250
		%	30.5%	29.8%	30.5%	30.3%
	civilian employees	Count	250^{a}	65^{a}	20^{a}	335
		%	33.9%	35.9%	45.5%	34.8%
indifferent	military professionals	Count	6^{a}	6^{a}	0^{a}	12
		%	1.0%	3.3%	0.0%	1.5%
	civilian employees	Count	11^{a}	5^{a}	0^{a}	16
		%	1.5%	2.8%	0.0%	1.7%
All Types	military professionals	Count	584	181	59	824
		%	70.9%	22.0%	7.2%	100.0%
	civilian employees	Count	737	181	44	962
		%	76.6%	18.8%	4.6%	100.0%

Table 6.18: Overview of findings for hypotheses regarding the construct of work orientations (*WO*) (chapter 6.4.1), the relationship between *WO* and psychological contract promises *P* (chapter 6.4.2), and more differences (chapter 6.4.3).

Hypo.	Focus	Findings	Comment
6.1	Main relations between *WO* types and *P* layers	supported	low effect sizes, cross relations
6.2	Relation between WO_{pn} and $P_{t\text{-}cont}$	supported	very low effect
6.3	Impact of Calling orientation on army-life balance	partly supported	effect found for senior active reservists only
6.4	Differences in *WO* types due to subsamples	partly supported	no support in terms of Job orientation, but for Career and Profession
6.5	Differences in *WO* types due to age	partly supported	supported for Career and Profession, but not for Job and Calling
6.6	Differences in *WO* types due to organizational variables	not supported	
6.7	Differences in reservists' *WO* types due to income	supported	
6.8	Impact of occupational title on work orientation	mostly supported	impact for Italian speakers only by trend, but non-significant

6.5 Discussion

The discussion section starts with a summary of contributions. Of these, the findings regarding the relationships of work orientations and psychological contracts are elaborated in a separate subsection. Following that, the limitations are addressed and suggestions for further research are provided. Next, two of these research suggestions are examined. The discussion closes with practical implications and a conclusion.

6.5.1 Summary and contribution

The summary is organized into six domains. First, the descriptive findings investigate the suggested expansion of the WO3 into the WO4 in general, and the introduction of the Profession item in particular. Second, the testing of hypotheses 6.1 and 6.2 reveals the relationship between work orientations and psychological contracts. Third, the correlation and the categorization technique are compared as alternatives to analyze work orientations. Fourth, the explorative findings regarding antecedents and outcomes draw a generic picture of the four work orientations. Fifth, tests of hypotheses 6.3 to 6.7 yield military-specific findings. Sixth, the evidence for hypothesis 6.8 suggests an impact of occupational titles on work orientations.

First, I expand Wrzesniewski et al.'s (1997) work orientation triad (WO3), including Job, Career, and Calling orientations, into a work orientation tetrad (WO4), by adding the Profession orientation (Moskos, 1977a; Wilensky, 1964). To measure all the work orientations, I develop a Profession item in the style of Wrzesniewski et al.'s (1997) original single-item orientations. Correlations between all four work orientations reveal that Profession neither strongly positively, nor strongly negatively correlates with any of the other scales. Thus, the new orientation is neither a substitute, nor an opposite of an original orientation. This observation holds true even when, by means of partial correlations, social desirability, work orientation strength, or age is controlled for (see table 6.10), substantiating the conceptual difference between the Profession and the other orientations (Moskos, 1977a; Wilensky, 1964).

Comparing frequencies within WO3 and WO4 for the present sample suggests the full WO4 is needed to account for the variety of work orientations in the Swiss Armed Forces. However, the prevalence of the Profession item is both boon and bane. On the one hand, shares between 33.7% and 54.7% suggest the Profession orientation is essential to describe work orientations in the present sample. On the other hand, this dominance complicates comparison with other orientations. Furthermore, the high average rating, $\mu = 2.223$ on a $[0, 3]$ scale, raises measurement concerns. Chapter 6.5.3 addresses these issues explicitly.

Second, proposition 6.1 relates the present chapter 6 to the earlier chapter 4, suggesting correspondence between Job, Career, and Calling orientations and the transactional, relational, and ideational layers of the psychological contract. The proposition goes back to Thompson and Bunderson (2003), suggesting the constructs are «theoretical cousins» (p. 575). In line with their proposition, the Job orientation is indeed related to transactional promised inducements, the Career orientation to relational promised inducements, and the Calling orientation to ideational promised inducements. Going beyond Thompson and Bunderson's suggestion, the Profession orientation is related to transactional-content promised inducements, a sub-factor of the transactional layer found in chapter 4. However, all four relationships are less direct than assumed. Effect sizes are only very weak, with explained variances from $\Delta R^2 = 1.1\%$ to 1.6% for the original, and 0.7% for the additional relationship. Moreover, these relations include cross relations in the case of transactional and ideational contracts. Wrzesniewski et al. (1997) found that Job and Calling orientations are inversely related; in line with this, the present findings suggest that Job is mainly anti-ideational, and Calling is mainly anti-transactional. These findings and their relevance to the dissertation overall are discussed in more detail in chapter 6.5.2.

Third, I provide exploratory findings using two approaches, namely the categorization technique and the correlation technique. I refine the categorization technique to derive more detailed findings, benefiting from the large sample size. For instance, I can show that differences in work orientations between subsamples are not caused by age, but persist within age groups. In addition, I develop the correlation technique as an alternative method, relying on partial correlations, which is suitable for smaller samples. This correlation method, in contrast to Wrzesniewski et al.'s (1997) categorization method, is able to account for relevant confounding factors, such as social desirability, or age. Yet an auxiliary variable work orientation strength *WOS* is needed to control for general tendencies in

rating work orientations. The nature of *WOS* has yet to be investigated, another point for chapter 6.5.3. However, testing of hypothesis 6.3 illustrated that the correlation approach, including *WOS*, leads to results comparable to the findings of the categorization approach.

Fourth, I confirm previous findings (Wrzesniewski et al., 1997; Peterson et al., 2009), stating that the Calling orientation is the most, and the Job orientation the least desirable with regard to outcomes. According to categorization (see table 6.9), individuals with Calling and Profession orientations have lower turnover intentions, higher work satisfaction, and show more work effort than Job or Career oriented individuals. Yet these findings can be refined. Partial Pearson correlations, where social desirability, work orientation strength, and age, are controlled for, further reveal that the negative correlation of Calling with turnover intentions is significantly ($p < .01$) stronger than the one of Profession, according to CI-based comparison of overlapping correlations (Zou, 2007). On the other hand, Calling is significantly ($p < .01$) negatively correlated with army-life balance, but Profession is not. The same procedure, following Zou (2007), helps to further differentiate the less favorable orientations. The negative correlation of Job to work satisfaction and work effort is highly significantly ($p < .001$) stronger than the one of Career, and the latter is even positively correlated with army-life balance. Thus, Job is clearly the least desirable, Career is the second least, Calling and Profession seem both favorable, with a slight advantage of Calling towards the organization, and of Profession towards the individual.

Beyond these differences, prevalences may moderate the potential of different orientations in an organization or a unit. With regard to outcomes, Calling is most desirable. However, when Profession is accounted for as an alternative, the evidence suggests that only a minority perceives their work as a Calling. Thus, focussing on Calling, for instance when creating a cultural ideal within an organization, may appeal to a minority only. In contrast, focussing on Profession may include a potential to create an organizational culture valuable – and accessible – for a majority. This is further elaborated in chapter 6.5.5.

Additionally, the finding that senior active reservists with Calling orientations suffer from a worse army-life balance may contribute to our understanding in a general and in a specific way. Generally, this adds to the growing evidence about the dark sides of Calling (e. g., Dempsey & Sanders, 2010). Furthermore, it addresses a topic of increasing importance, the role of volunteers in organizations (e. g., Vantilborgh et al., 2014). Specifically, the finding points at a permanent challenge for the Swiss Armed Forces, the strain on senior active reservists (e. g., Wüest, 1950; Ernst, 2010; Amiet, 2013).

Hypothesis 6.5 predicted that Calling and Profession orientations increase, but Job and Career orientations decrease for older individuals. This is met for Profession and Career only. Strikingly, Calling and Job orientations remain practically constant across all age groups. Overall, one may conclude that there are twice as many Profession types as Career types at the beginning of the career; later, the Profession orientation gains with advancing age, at the cost of the Career types. In contrast, Job and Calling orientations represent constant minorities across age groups. Particularly, this suggests that Moskos' (1977a) assumption of the decline in Calling does not apply to the Swiss Armed Forces, or that it no longer applies. Yet this Career-Profession transition remains obscure; future research must

address the question, whether this transition occurs due to personal development, societal value shifts, or military-specific changes.

As a further observation, it is striking that French/Italian-speaking individuals are underrepresented among Job types. One reason for this could be that the French-speaking part of Switzerland is less supportive of the Swiss Armed Forces (Szvircsev Tresch et al., 2016, p. 163). Thus, it may be that French-speaking individuals are more decisive about the armed forces, and therefore, a disaffected orientation towards this particular employer may be less likely.

Fifth, I test predictions from the Armed Forces and Society literature, referring to Moskos' (1977b) «I/O model». This widely regarded multi-level concept (Collmer, 2010) states that units, branches, and vocational categories of armed forces vary between an *institutional* type, oriented at traditional military values, and an *occupational* type, following modern civilian values. Moskos (1977a) suggests the institutional model fosters Calling orientations, and the occupational model, in the present terminology, Job orientations. Yet scholars have also translated the institutional type into a Profession orientation (Caforio & Nuciari, 1994). Furthermore, I argue that similarly, the occupation model may promote Career orientations in addition to Job orientations. In summary, I regard Calling/Profession orientations as more institutional, and Job/Career orientations as more occupational ones.

Hypothesis 6.4 proposed subsample-specific differences in work orientation prevalences, which were mostly confirmed. The share of Job orientations is 1.4 times higher among civilian employees, but the differences are not significant, given the low cell counts. Career orientations are most prevalent among senior active reservists, according to predictions – and a classic suggestion of Janowitz's (1961). Additionally, Profession orientations are most prevalent among military professionals. Moreover, disintegration into age groups showed that these differences vanish the older the individuals are. In other words, younger members of the Swiss Armed Forces show orientations that are closest to the predictions, and older members are more homogenous than expected.

Hypothesis 6.6 suggested differences regarding branches, such as combat vs. combat support, and organizational units, such as the Air Force vs. Land Forces. However, the findings reveal that the Swiss Armed Forces are clearly homogeneous in terms of work orientations. Three reasons are conceivable for the lack of such differences. First, the Swiss Armed Forces are in an enduring «cold state» of warlessness (Soeters et al., 2006). Second, the militia principle anchors the Armed Forces more strongly in civil society than presumably in any other organizational form (Haltiner & Hirt, 2000). Third, postmodern developments of armed forces lead to increasingly civilian missions (Moskos et al., 2000). All three reasons move the Swiss Armed Forces closer to civil society, leaving less room for differentiation from this society. However, it is exactly in this dimension Moskos (1977a) suggested the shift of, and differences within, the I/O model.

Hypothesis 6.7 predicted that with increasing income – outside the Swiss Armed Forces – senior active reservists would become more Calling oriented, which was fully supported. This finding underscores the societal importance of these officers. First and foremost, Calling oriented persons are beneficial to the organization, based on their positive impact on the organization. Second, senior active reservists of

above-average income likely act as ambassadors of the Swiss Armed Forces in the private sector. Third, but not least, this type of individuals is likely to be most independent of economic constraints of the armed forces; yet they contribute to the Swiss Armed Forces *despite* the implied financial losses. Thus, they are more likely to show voice behavior, which is an important contribution to the advancement of the organization, and to the prevention of potentially disastrous failure (Morrison, 2011).

Sixth, the last hypothesis 6.8 proposed that occupational titles impact the work orientations of military professionals. This assumption is mostly supported. The effect is significant for French-speaking military professionals, where the reference to Career in terminology, such as *pilote militaire de carrière*, *officier de carrière* or *sous-officier de carrière spécialiste* apparently relates to more prevalent Career orientations. Equivalent tendencies in Italian (*ufficiale di professione*) were found, but were not significant ($p > .05$). This, however, may be obstructed by the low number of Italian-speaking military professionals, with only 59 of them responding to the work orientation items. In contrast, the control group of civilian employees did not show these differences at all. Overall, I conclude that occupational titles indeed impact work orientations, substantiating the importance of job titles for work identities (Caldwell, 2002).

6.5.2 Relations to the psychological contract

In contrast to the considerable relationship between the three layers of the psychological contract and the three components of organizational commitment (chapter 5), the three original types of work orientation are only loosely related to the layers of the psychological contract. Yet these links are further obscured by the finding that Job is rather anti-ideational than pro-transactional, and similarly, Calling is rather anti-transactional than pro-ideational. It seems that these orientations buffer perceived promises of the contrasting psychological contract layer, whereas the Career orientation indeed fosters the relational contract. Furthermore, the finding that the Profession orientation relates to the transactional-content sub-factor of transactional contracts merits special attention. On the one hand, this substantiates the distinctness of Profession and Calling, because both orientations relate significantly with transactional-content inducements, but with opposite signs. On the other hand, this adds to the suggestion of chapter 4, that transactional contracts may indeed entail two different sub-factors.

Despite the small effect sizes, these relations contribute to the general picture of favorability of the different orientations. As has been argued in chapter 5.5.2, there may be some hierarchy between layers, with the ideational contract being superior to the relational contract, and both of them being superior to the transactional contract. Similarly, Calling orientation has been found to be superior to the Career orientation in individual and organizational outcomes, and the Career orientation is itself superior to the Job orientation.

However, the previous three paragraphs notwithstanding, the small effect sizes also clearly display the limitations of such «theoretical cousins» (Thompson & Bunderson, 2003). It is just not sufficient that two concepts «sound alike», or have some transcendent commonalities. Measurable relationships only emerge based on mechanisms. In this study, I assumed the underlying mechanism to be screening and self-selection. These mechanisms were not operationalized and thus remain speculative. This does not

exclude that these mechanisms are potentially powerful; it is possible that enhanced HR practices foster congruence between work orientations and promised inducements, to the advantage of organizations and individuals. This idea is elaborated in chapter 6.5.5.

Finally, these findings also tell us something about the nature of the psychological contract. On the one hand, they present additional evidence against the bipolar interpretation to the psychological contract (e. g., Mirvis & Hall, 1994). If there was a general shift from the relational to the transactional contract in the 1990s, it was diametrically opposed to the repeated findings of Career orientations, which was more prevalent among young employees. Further, Job orientation was constant across all age groups. On the other hand, the findings substantiate the claim that the psychological contract is about promises (Rousseau & McLean Parks, 1993) and obligations (Rousseau, 1998) of the employer, and not about expectations. Presumably, the relationship between work orientations and different layers of *expectations* would be more evident; in contrast, relations between work orientations and *promises* only appear where they match, at least to a certain degree.

6.5.3 Limitations and the future

The present chapter entails seven limitations. First, the high base rate of the Profession orientation. Second, the auxiliary variable *WOS*. Third, the single-item measures in general. Fourth, the open generalizability of the newly introduced WO4. Fifth, the cross-sectional design of the study. Sixth, the omission of more recent theories about identities of soldiers. Seventh, the still missing theoretical background. The first six issues come with suggestions to further research. For the last limitation, two theoretical perspectives are suggested in the subsequent chapter.

First, the high mean of the Profession orientation, with $\mu = 2.223$ on a scale $[0, 3]$ is apparent. On the one hand, this could be due to a Barnum effect (Meehl, 1956), a phenomenon were people are likely to affirm vague and generally applicable statements about themselves as precise reflections of their identity (Rosen, 2015). However, there are some arguments against this suggestion. For instance, the effect is more likely to occur for short statements (Sundberg, 1955, p. 146), which does not apply to the item proposed in chapter 6.3.1. Furthermore, the Barnum effect is known to happen more when people are told that the description was derived from their personality (Snyder & Larson, 1972, p. 387), but no such priming was done. On the other hand, the Barnum effect is more likely to happen for favorite descriptions (Snyder & Shenkel, 1976, p. 39), which can be presupposed for the Profession item, given its positive correlation with social desirability (see table 6.4). In this sense, the item could merely be socially desirable in the original meaning, that is «the social desirability of personality test items» (Crowne & Marlowe, 1960, p. 394). Possibly, deletion of the fragment «Being autonomous in his every day work is important to person D.» would be sufficient to resolve, or at least reduce this issue.

Second, the auxiliary variable work orientation strength *WOS* is an improvised solution to interpret the findings in the correlation approach. The issue became apparent in the preliminary analysis, where all four work orientations correlated negatively to army-life balance. Inclusion of *WOS* as a control

variable resolves the issue; however, it remains to be clarified what *WOS* exactly is. In particular, if it represents the same kind of identity strength, it merits solid theoretical and methodological foundation.

Third, the limitations in methods can be effectively overcome only by introducing multi-item scales. Such scales are indispensable to scrutinize the construct of work orientations. Factor analysis may help decide whether there are indeed four independent work orientations, whether there are even more, with sub-factors appearing, or maybe only three, for instance with Job and Calling pairing as opposite ends of one dimension. Furthermore, analysis of the different items helps understand exactly which fragments make up the different work orientations. A suggestion for such a multi-item scale is provided in four languages in appendix A.3.2. For the original Job, Career, and Calling orientations, the items correspond to the 18 items Wrzesniewski et al. (1997) included in their original study; for the Profession orientation, the items are conversions of the fragments used to form the single-item measure in chapter 6.3.1.

Fourth, generalizability of the WO4, and in particular of the Profession orientation, is disputable. The present study has shown that the item is generalizable across military professionals, civilian employees, and senior active reservists. Although it has been argued that the employment relationship of military professionals and civilian employees is not fundamentally different from those in the private sector (e. g., DiMaggio & Powell, 1983; Keller, 2009), the differences are undeniable. Even if the item proves to be meaningful in the private sector, this would not imply it is needed for all samples. Just as the Job orientation did not appear in Wilensky's (1964) study among professionals, it is also conceivable that the Profession orientation was not found in Bellah et al.'s (1985) middle-class sample, or at least, did not emerge prominently. In addition, studies with non-military and non-professional samples are needed to determine whether the high approval rate of the Profession item is sample-specific or an item flaw. However, for the present sample, this cannot be decided. The high approval for military professionals is conceivable, given the professional nature of these groups (Huntington, 1957). Further, the still-high rates for civilian employees (46.0% of all, or 72.3% of unambiguous) and somewhat lower rates for senior active reservists (33.7%, and 56.5% respectively) may be due to spillover from the cultural prototype of the military professional in armed forces (Vom Hagen & Tomforde, 2012, p. 302).

Fifth, the cross-sectional design of the study impedes the understanding of the age differences found. Whether the higher share of Career orientations among younger individuals is due to personal development, generational change, or institutional shift, is a question that can only be answered using longitudinal studies.

Sixth, despite its wide influence, Moskos (1977b) I/O model is no longer the state of the art in Armed Forces and Society anymore (Collmer, 2006). It was a useful starting point, given its relatedness to Moskos' (1977a) proposition about Occupation, Profession, and Calling. However, later Moskos et al. (2000) updated his model towards a more fine-grained evolution from modern to late modern and post modern armed forces. In parallel, and going further, more recent concepts about the identity changes of soldiers have been developed (e. g., Haltiner & Kümmel, 2008, 2009). As an example, Haltiner and Kümmel's model of the soldierly identity is three-dimensional. Here, the first axis from «when a soldier participates in military missions only because of the financial and economic gains he/she expects, solely

because of careerist considerations» to the soldier who «is convinced that his action is good, justified, morally responsible or widely accepted politically.» (Haltiner & Kümmel, 2009, pp. 77–78) reflects the axis from Job/Career to Calling/Profession suggested in this study; but there are two additional axes, ranging from *segregated armed forces* to *integrated armed forces*, and from *nation/monofunctionality* to *world society/multifunctionality*, respectively (p. 78). Such an embedding promises additional insights to military work orientations.

Seventh, the theoretical background for work orientation (Skorikov, 2008) is still missing. Given the weak relationships found between work orientations and perceived promises, it is unlikely that the psychological contract construct provides a useful framework to work orientations. However, I suggest two additional constructs, one based on Schein's (1996) career anchors, and the other on Skorikov's (2008) taxonomy, to embed work orientations in an existing framework. This may advance our understanding of work orientations.

6.5.4 Frameworks of work orientations

According to the reasoning in chapter 6.2.3, relationships between work orientations and psychological contracts are only direct, and are possibly mediated by screening and self-selection procedures. Findings reveal that these relationships are indeed weak (see chapter 6.5.1). Thus, to resolve the issue of the missing theoretical framework for Wrzesniewski et al.'s (1997) work orientation construct (Skorikov, 2008), psychological contract theory (Rousseau, 1990) is unlikely to easily provide this framework in a convenient manner. As an alternative, I suggest two frameworks to embed work orientations in.

The two frameworks proposed differ diametrically. The first framework relies on a proposition of Skorikov's (2008), and classifies the 4 types along 2 dimensions. Thus, it is an attempt to reduce the 4 work orientations to 2 characteristics. Schein's (1965) 8 career anchors provide the second framework; it is an attempt to break the 4 types down into 8 sub-dimensions.

To correct for the lack of theory, Skorikov (2008) proposes a framework to classify Wrzesniewski et al.'s (1997) work orientations along two dimensions, with two values each. Skorikov suggests *stability* and *growth* as values for «preferred career dynamics», but I suggest the label *preferred dynamics* instead to prevent confusion with the Career orientation. The other dimension, *work motivation*, may either take the value *intrinsic* or *extrinsic* (p. 30). Thus preferred career dynamics and work motivation yield 4 combinations. Skorikov then suggests that Job corresponds to the *extrinsic/static*, Career to the *intrinsic/growing*, and Calling to the *intrinsic/stable* combination (p. 30). For the fourth combination *extrinsic/growth*, he subsequently proposes a new type he coins *social ladder*.

I agree with Skorikov on classification of Job and Calling. However, I argue for a reclassification of the Career orientation as *extrinsic/growing*, where Skorikov proposed *social ladder* as a new orientation. In turn, I suggest the Profession orientation to be *intrinsic/growing*, instead of the Career, as Skorikov claimed.

On closer examination, the intrinsic aspect does not fit Wrzesniewski et al.'s (1997) understanding of the Career orientation. The Career item segment «sometimes his work seems a waste of time» describes

an extrinsic motivation, and Career respondents did not agree with the statement «I find my work rewarding» ($r = -.13, p > .05$). In addition, Wrzesniewski et al. state that the Career orientation is «somewhat closer to extrinsic than intrinsic motivation» (p. 23). Thus, in line with the literature, I suggest classifying Career as the *extrinsic/growing* orientation, instead of «social ladder» Skorikov proposed.[90]

This is not to say Skorikov's «career ladder» is erroneous; rather, it effectively matches the Career orientation. Acknowledging the equivalence of Wilensky's (1964) Careerist and Wrzesniewski et al.'s (1997)' Career oriented individual substantiates this match, because Wilensky's (1964) Careerist sees his work as a chance for social mobility (p. 151).

If the Career orientation takes the *extrinsic/growth* position, the proposed fourth work orientation, the Profession orientation, may effectively take the *intrinsic/growth* position instead. Indeed, the Profession orientation includes both notions of a growing dynamic, emphasizing the lifetime career, and it also involves the intrinsic value of the work, the tasks accomplished, and the skills used (Moskos, 1977a; Wilensky, 1964). It thus seems appropriate to classify the Profession as the intrinsic/growth orientation in Skorikov's (2008) taxonomy, where he originally placed the Career.

Further, Skorikov's (2008) classification of Job as *extrinsic/stability-* and Calling as *intrinsic/stability-*oriented offers little doubt. Regarding the motivation dimension, both classifications correspond to Wrzesniewski et al. (1997, p. 23). Regarding the preferred dynamics, *stability* reflects the lack of ambition in the Job orientation. In contrast, judging the Calling orientation as preferring *stability* is not self-evident. However, examples of qualitative studies on Calling, such as zookeepers (Bunderson & Thompson, 2009) or priests (Kreiner et al., 2006) illustrate that effectively, Calling does not need growth in terms of the work position. This is not to say that development is excluded, but it is not a characteristic of a Calling. As Schwartz (1986) puts it, «people with a Calling are doing something of value. It will not lose its value even if they are stuck doing it, with no prospects for moving up, for twenty-five or more years» (p. 21). In addition, Bellah et al. (1985) suggest the same static interpretation when contrasting Calling with the Career (p. 119). Thus, Skorikov's (2008) understanding of Calling as being *intrinsic/static* is in line with the literature.

To summarize, I suggest a taxonomy based on Skorikov (2008) – but adapted according to table 6.19 – to serve as a framework for further theorizing and interpretation of work orientations. Examination of this taxonomy in further research is straightforward for the *work motivation* dimension, but perhaps less so for the *preferred dynamics*. Extrinsic and intrinsic motivations may be assessed using the Work Preference Inventory (WPI; Amabile, Hill, Hennessey, & Tighe, 1994). In contrast, no scale seems available for preferred dynamics. Thus, one may also use an indirect approach. For instance, Cassar (2007) measured growth orientation by referring to control orientation and risk preferences. However, development of a separate scale may be appropriate to test the suggested taxonomy of work orientations.

90 In light of Wrzesniewski et al.'s (1997) paper, Skorikov's classification of the Career orientation as *intrinsic/growing* is indeed puzzling. An explanation may be found in the literature he is citing. For instance, he refers to Vaughan and Roberts' (2007) study on the career development of young people. In this view, careers appear as «dynamic, rather than pre-conceived entities» (p. 91) and central for identity production (p. 92). Skorikov's understanding of the Career orientation presumably roots in this literature.

Table 6.19: Taxonomy of the 4 work orientations, following Skorikov (2008, p. 30).

Work motivation	**Preferred dynamics**	
	stability	growth
extrinsic	Job[†‡]	Career[†§]
intrinsic	Calling[†‡§]	Profession[‡§]

[†] Orientation is part of Wrzesniewski et al.'s (1997) triad.
[‡] Orientation is part of Moskos' (1977a) triad.
[§] Orientation is part of Wilensky's (1964) triad.

Of note, this taxonomy offers a way to redefine both the Career and the Profession orientation. On the one hand, Wrzesniewski et al. (1997) criticized the Career orientation as «the ‹thinnest› definition, focusing almost entirely on…advancement» (p. 32) and proposed enriching the Career item along the intrinsic-extrinsic dimension. On the other hand, the Profession orientation as developed in the present dissertation received very high agreement, possibly suffering from a Barnum effect (Meehl, 1956, see chapter 6.5.3). This could be corrected for by rewriting the Profession item more *growth* oriented, to reduce average agreement, and to raise discriminant validity when compared to the Calling orientation.

The second approach is to embed the four work orientations within an already existing framework, namely Schein's (1996, 1990, 1974) career anchors. Based on his empirical work of the 1970s, Schein popularized a scheme of 8 «career anchors». Career anchors are self-concepts, «consisting of 1) self-perceived talents and abilities, 2) basic values, and, most importantly, 3) the evolved sense of motives and needs as they pertain to the career» (Schein, 1996, p. 80). The notion of the *anchor* refers to the stabilizing effect once the self-concept is formed. One advantage of integrating Schein's concept into work orientations is to overcome the inherently normative view of the work orientations.

Job orientation may be represented by the anchors *security/stability* (Schein, 1996, p. 81) and *life style* (p. 86). Both anchors correspond to the instrumental understanding of the Job orientation. Employees with a *security/stability* anchor prefer pay and benefits to intrinsic motivations (Schein, 1990, p. 28), and the same holds implicitly for those preferring *life style*. The negative wording of the Job orientation item («…he would no longer …He often wishes the time would pass more quickly …he would not encourage his friends…») by Wrzesniewski et al. (1997, p. 24) contrasts with the neutral terminology of Schein; he explicitly counters the «unfair stereotype» of the *security/stability* anchor (p. 28). Similarly, Schein (1996) appraises the upcoming of the *life style* anchor as a «healthy development» (p. 83).

Career orientation may be equaled with the anchors *general managerial competence* and *pure challenge* (Schein, 1996, p. 84). *General managerial competence* parallels the extrinsic motivation inherent in the Career orientation. Further, the anchor reflects management as process skills rather than tasks (p. 84), exactly matching the meaning of skills in the Career orientation (Baumeister, 1991, p. 124). *Pure challenge* mirrors the importance of achievement in the Career orientation (Bellah et al., 1985, p. 66).

The Calling orientation matches the *service/dedication to a cause* anchor (Schein, 1996, p. 85) and the *entrepreneurial creativity* anchor (p. 84). Calling is associated both with the notion of a cause (Thompson & Bunderson, 2003) or a «presumed higher good» (Moskos, 1977a, p. 24). *Entrepreneurial creativity* is probably the anchor most difficult to identify with a specific work orientation; however, both the intrinsic character and the dedication, but also the notion that it may be lived out besides one's regular work (Schein, 1990, p. 29), contains some hallmarks of Calling.

The anchors *autonomy/independence* (Schein, 1996, p. 84) and *technical/functional competence* (p. 83) correspond to the Profession, for which autonomy (Moskos, 1977a; Turner & Hodge, 1970; Schössler, 1980; Downes, 1985; Barber, 1963), expertise (Moskos, 1977a; Flexner, 1915/2001; Downes, 1985; Wilensky, 1964), and practice (Parsons, 1949/1954; Turner & Hodge, 1970; Flexner, 1915/2001; Downes, 1985) are crucial characteristics. Clearly, Profession orientation is reflected in these career anchors.

The relationships between the work orientation according to definition 6.2 and Schein's (1996) career anchors provide a promising basis for further research. Table 6.20 provides an overview of the speculative congruences.

Table 6.20: Suggested analogies between work orientations and Schein's (1996) career anchors.

Work orientation	Career anchor	Schein (1996)
Job	security/stability	pp. 81–82
	life style	pp. 82–83
Career	general managerial competence	p. 84
	pure challenge	p. 85
Calling	entrepreneurial creativity	pp. 84–85
	service/dedication to a cause	p. 85
Profession	technical/functional competence	pp. 83–84
	autonomy/independence	p. 82

In summary, I suggest two possible frameworks to back up work orientations with existing concepts. The first framework, a refinement of a taxonomy suggested by Skorikov (2008), attempts to categorize the four work orientations according to two dimensions, that is *work motivation* and *preferred dynamics*. The second framework implies an attempt to relate the four work orientations to the well-studied career anchors of Schein (1996). Both suggested frameworks are not mutually exclusive; however, each of them needs additional theoretical reasoning and empirical tests to advance the work orientation construct.

6.5.5 Practical implications and conclusion

I suggest eight practical implications, mirroring the 8 hypotheses tested in this chapter 6. Each suggestion starts with a *short statement*, which is practically goal-oriented, and which carry the risk of oversimplification. For purely theoretical implications, refer to chapter 6.5.3.

Challenge the ideal type. Some organizations – presumably, also the armed forces – expect a Calling from their employees. Some organizations mercilessly foster Career orientations. Some organizations do not care, as long as the Job is done. The superiority of Calling was corroborated by the present study; yet it seems that only a minority adheres to this orientation. Careerists are role models in modern business firms, yet the disadvantages of such an orientation are apparent, in light of the evidence. For Jobbers it may be sufficient to comply with simple tasks in a lot of organizations; however, this may imply idle human capital. Presumably, there is no best work orientation for all organizations, not even within one organization. Yet the examination of the ideal type may help supply the organizational culture with a face.

Push the Profession. Despite the superiority of Calling, its minority status prevents a broad application within the organizational culture. Rather, such an ideal type may likely overstrain employees. The Profession is a valuable alternative, which is found to be applicable to a wider range of employees and even volunteers. In terms of organizational outcomes, the Profession orientation is almost as beneficial as the Calling; however in terms of work-life balance or, in the present terms, army-life balance, the Profession seems to exceed even the Calling orientation. Given the growing importance of army-life balance, in particular for military professionals, the Profession may even present an invaluable alternative to the pretense of a Calling. This, then, may be the practitioner's answer to Wilensky's (1964) question «the professionalization of everyone?»

Bear in mind that volunteers have a life, too. In light of the growing importance of volunteers in modern organizations, their expectations cannot be ignored. For the Swiss Armed Forces, the increasing strain on senior active reservists, particularly in terms of the administration, seems worrying. Ignorance of their private needs (see box 6.9) puts the willingness of volunteers at risks. Therefore, army-life balance merits attention, precisely because senior active reservists are volunteers.

Acknowledge differences where they exist. Apparently, there are differences in work orientations between different vocational groups within one organization. Further, work orientations do not make the only difference. However, both the evidence for significant differences between military professionals

Box 6.9: A survey participant reflecting unmet promises

«Das schlimmste war, dass das System Armee in Bezug auf die Bedürfnisse der AdA völlig unflexibel ist und sich nicht an Zusicherungen hält. Beispielsweise habe ich damals mein Kommando unter der Zusicherung übernommen, dass ich im ersten Kommandojahr den FDT nicht leisten müsse (…) Nach erfolgter Kommandoübernahme (…) wollte sich mein Vorgesetzter (der allerdings auch wechselte) nicht mehr an die Vereinbarung halten. Glücklicherweise habe ICH eine Lösung gefunden. Die Armee hat mir dabei aber keinerlei Unterstützung angeboten (Sie sind Kommandant. Finden Sie eine Lösung.)» [no. 113]

and civilian employees, and the anecdotal evidence (see box 6.6) suggest such differences should be actively addressed. Mutual comprehension of different work orientations may help bridge the gaps between groups.

Try to understand developments. Try to try harder. It is astounding that the average Career oriented individual is about 7 years younger than the other groups, whether measured in the present sample in 2015, in Peterson et al.'s (2009) study, or 20 years ago (Wrzesniewski et al., 1997). Further, both Moskos (1977a) deplored the rise of Occupational tendencies, and Janowitz (1961) observed comparable changes in career patterns. This is not a critique of the claims of previous authors; however, I suggest the issue of changing work orientations in a given organization may only be resolved when we know the reasons for them. If it is an institutional, a societal, a generational shift, or many individual shifts, the answer is likely to be different.

Don't see differences where they don't exist. Cultural differences between groups within organizations are widespread and not *a priori* detrimental, yet they may serve important functions. However, differences should not be over-estimated either. If there are actually no differences in regard to work orientations between groups, such as the Air Force and Land Forces, this may offer a bridging point to joint (HR) operations.

Mind the impact of occupational titles. Occupational titles can have crucial impact on identities. In Switzerland, the challenge is a particular one, that of finding coherent designations in three different languages. In the present case, however, it seems that the French *officier de carrière* implies unfavorable consequences on the work orientations. The evidence suggests that an occupational title reflecting the effective task, such as the former *instructeur*, may be advantageous to work orientations, thereby positively influencing both organizational and individual outcomes.

To resume, work orientations form a challenging construct. It is a challenge in terms of theory, given that so far no consistent framework has been found and validated. It is a challenge in terms of methods, given that measurement and analysis both need considerable advancement, to get the maximum output of the construct. And it is a challenge in terms of practice, because it seems (though plausible as a concept) that intangible assets, such as organizational culture or ideal types, are hard to measure.

Chapter 7

Final Remarks

But what is useful would seem to be that through which something good or pleasant arises,
with the result that what is good as well as what is pleasant would be lovable as ends.
Is it the good, then, that people love or is it the good for themselves?
For sometimes these conflict, as is the case also with the pleasant. . . .
Yet each in fact loves not what *is* good for him but what *appears* so.
Yet this will make no difference at all, since it will be what *appears* lovable
[that each will in fact regard as good and so love].

The Nicomachean Ethics (Aristotle, 350 B.C./2011)

Psychological contracts are mental models of exchange relationships, binding individuals to their organization in a manifold way (Rousseau, 1990; Petersitzke, 2009). Transactional contracts reflect the exchange of economic currency, such as time and money. In addition, relational contracts reflect socio-emotional exchange, binding individuals in an additional, sometimes stronger way to the organization. Furthermore, ideational contracts entail ideological inducements, reflecting an exchange that is not for the benefit of the individual, nor of the organization, but in favor of a higher cause (Thompson & Bunderson, 2003).

These bounds lead to different attitudes, namely organizational commitments. The *need to* stay with the organization, due to economic constraints, is entailed in continuance commitment. In contrast, affective commitment is an attitude involving the *want to* stay with the organization, based on social wants and emotions. Finally, some individuals *ought to* stay, due to moral, norms, or ideals, represented by normative commitment. (N. J. Allen & Meyer, 1990).

Not all individuals perceive inducements as having the same strengths. Those focussing on economic inducements rather see their work as a Job. For others, emphasizing advancement in the organization, work is a Career. Yet for others, ideals are central and to these people, work is a Calling (Wrzesniewski et al., 1997).

The parallels between these concepts are striking; Thompson and Bunderson (2003) coined the term «theoretical cousins» (p. 577) which suggests a relationship between psychological contracts and work orientations. Furthermore, my argument relating psychological contracts with commitment referred to Kelman's (1958) influence types (compliance, identification, and internalization); utilitarian, attraction-based, and normative reciprocities (theory of indebtedness, Greenberg, 1980); and Graham and Organ's (1993) transactional, social exchange, and covenantal organization types.

This dissertation is an investigation of such assumed theoretical cousins; its goal is not to equalize concepts, but to relate them. The psychological contract forms the core of this venture; accordingly, chapter 4 laid the *foundations*. After that, chapter 5 revealed the *potential* of such similarities, relating the core to organizational commitment. Finally, chapter 6 showed the *limits* of such cousinships; «somehow» referring to the same topic, or sharing transcendent commonalities, is not enough to link constructs within people; underlying mechanisms must convey these parallels.

Generalizing across the three chapters, chapter 7.1 resumes the *fundamental* findings. Chapter 7.2 addresses the general *limitations* of the study, and chapter 7.3 suggests three *potential* expansions and a comprehensive interpretation. Chapter 7.4 closes with a final conclusion.

7.1 Summary and Contribution

Addressing the six research questions provided in chapter 1 I will now summarize the study's six main contributions. First, the study investigates the nature, content, and structure of the psychological contract (Rousseau, 1990). To overcome the theoretical weakness of the construct (N. Conway & Briner, 2005),

I follow Petersitzke (2009) and derive a definition of the psychological contract integrating mental models (Johnson-Laird, 2004) and social exchange theory (Blau, 1964). This conceptualization corroborates the suggestion of the existence of a psychological contract in three layers (Thompson & Bunderson, 2003), which was empirically validated in a large sample ($n = 2\,928$) of the Swiss Armed Forces. Different layers add different dimensions, rather than align on one dimension. To analyze this, I suggest a new approach, applying PRA (Edwards & Parry, 1993) on measures of promises and fulfillment (Schurer Lambert et al., 2003). In doing so, I overcome the issues of difference scores (Edwards & Parry, 1993) and the critique of missing direct measures when using PRA (N. Conway et al., 2011).

Second, I use the measurement of the psychological contract to validate the existence of transactional, relational, and ideational contract layers across three subsamples, namely military professionals, civilian employees, and senior active reservists. This contributes to the generalizability of the construct. In particular, senior active reservists represent volunteer members of an organization. Evidence for a transactional contract in this subsample suggests that the recent assumption – that volunteers are not susceptible to transactional contract – is premature (Bingham et al., 2014; Vantilborgh et al., 2014). All three layers predict organizationally relevant outcomes, namely work satisfaction, turnover intention, and work effort. Furthermore, some evidence suggests that transactional contracts may be divided into monetary- and content-related components. Overall, the relational contract yields the strongest effects.

Third, the study aims to relate the psychological contract with organizational commitment, a relation that is claimed to need additional theorizing (Wayne et al., 2009). Relating to Kanter's (1968) commitment model and Kelman's (1958) influence types, I provide a sound argument that each layer of the psychological contract corresponds to a component of commitment. Covariance structure models support the assumed relationships; further, models suggest a hierarchical interpretation, where *inferior* layers exert a stronger impact on *superior* components, than *superior* layers do on *inferior* components. Additionally, the evidence for organizational commitment in all three subsamples corroborates the «micro generalizability» of the construct, as has been claimed for (Jaros, 2007, p. 16).

Fourth, the dissertation supports discriminant validity of affective and normative commitment (Meyer et al., 2008; Gade, 2003) in two ways. Theorizing suggests that these components are distinctively related to psychological contract layers. The evidence substantiates this distinction, showing that affective and normative commitment appear differently for employees and active reservists (see Gade, 2003). The expansion of commitment to the *vocation* focus further contributes to the argument that military professionals pursue a profession *sui generis* (Downes, 1985), but that they relativize their distinctness in comparison with civilian colleagues (P. Klein, 2006). Comparing the links each between vocational or organizational commitment and the psychological contract, suggests that *cognitive monopsony* may determine the way employees of the Swiss Armed Forces think about their employer-employee relationship.

Fifth, I expanded Wrzesniewski et al.'s (1997) triad of work orientations into a tetrad, merging their proposition with the typologies suggested in Military Sociology (Moskos, 1977a) and the Sociology of Professions (Wilensky, 1964). Accordingly, I derive a fourth measure from these literatures. Only

the expanded typology includes the Profession orientation, which is prevalent in the Swiss Armed Forces. Following the suggestion by Thompson and Bunderson (2003), I investigate the relationship between triadic work orientations and psychological contract layers; further, some evidence suggests the fourth orientation relates to the content-related fraction of transactional contracts. Relationships of transactional, relational, and ideational promises with Job, Career, and Calling orientations are only small and are intricate. These findings demonstrate the limits of theoretical cousins; apparently, the mechanism aligning work orientations with psychological contracts only seems to act weakly. To analyze the work orientation tetrad, I refine Wrzesniewski et al.'s categorization and suggest a simple alternative based on partial correlations.

Sixth, applying the refined categorization approach to the work orientation tetrad, I show that the Profession orientations, just as Calling, are associated with beneficial outcomes, and that they corroborate the ambivalent character of the Career as well as the detrimental effect of the Job orientation. Relating these work orientations to Moskos' (1977b) classic assumptions of the I/O model, I show that in general the suggested heterogeneities do not exist in the Swiss Armed Forces. In contrast, I provide evidence that job titles affect the work orientations of military professionals (Caldwell, 2002).

7.2 Limitations and the Future

Its contributions notwithstanding, the study has several limitations. Five limitations are covered in several of the main chapters; each limitation leads to future research opportunities.

First, the *cross-sectional* design of the study excludes rigid tests of causality and an investigation of the developmental aspects. Both the hierarchy interpretation of the psychological contract-organizational commitment relationship, and the assumption of work orientations as precedents of psychological contracts, need systematic testing. Furthermore, developmental aspects seem relevant not only to theoretical understanding, but also to put the findings into practice. This applies both for the isolated constructs as for the relationships between them. Is the psychological contract stable? How do work orientations form? How do changes in psychological contract fulfillment, that is breaches and violations, affect commitment components? Might HR practices achieve better alignment of work orientations with psychological contracts, and does this add value to the employer-employee relationship? These questions can only be addressed by retesting the present findings in a longitudinal study.

Second, the study may suffer from the *common method* applied. Apart from some organizational control variables, most controls, all central constructs, and all outcome variables rely on self-reported measures. Each of these elements may be tackled in a different way. The suggestion that psychological contracts are mental models can be addressed using adequate methods from cognitive psychology (Petersitzke, 2009). Actual work orientation measures call for vignette studies (Greene, 2003). Outcome variables could include organizational data, such as promotions, missing days, or supervisor rating.

Finally, army-life balance could entail commitment and satisfaction of spouses. Such expansions are needed to exclude the common method bias that is potentially inherent to a survey study.

Third, even before changing methods, measures could be improved, including stronger *multi-item scales*. The rather low number of items allowed for an overall impression of the constructs, yet a detailed view is missing. It remains unclear whether transactional contracts effectively break up into subfactors. The discriminant validity of affective and normative commitment (Meyer et al., 2008) may be improved by separately aligning each component with the respective psychological contract layer. However, an alignment like this calls for more extensive commitment scales, were items may be selected according to their relatedness to contract layers. Finally, I suggest the work orientation measure by Wrzesniewski et al. (1997) needs to overcome its single-item existence to gain wider acceptance (Dik et al., 2012). Thus I suggest an according item battery in appendix A.3.2.

Fourth, several constructs involved rely on basic conceptualizations rather than *recent theory*. Organizational commitment is increasingly studied in the profile approach (Vandenberg & Stanley, 2009; Meyer & Herscovitch, 2001; Meyer, 2014); moreover, the interdependency of components also offers a new perspective on psychological contracts. In addition, outcomes may be conceptualized in a more sophisticated way. The situation described of employees subject to *cognitive monopsony* invites an integration of more fine-grained turnover intention models. For instance, Hom et al. (2012) integrate the *reluctant stayer*, and Woo and Allen (2014) include the *detached stayer*, both presumably relating to an employee who sees his employer as the only buyer of his labor – in economic, socio-emotional, or ideological terms. This claim to involve more recent theories addresses Armed Forces and Society as well. Instead of the classic I/O model (Moskos, 1977b), theories reflecting the multifaceted identity of the hybrid soldier (Haltiner & Kümmel, 2009) may provide additional insights into the work orientations of military professionals and senior active reservists.

Fifth, *generalizability* needs to be addressed. Group homogeneity as in the present subsamples of the Swiss Armed Forces, helps to isolate effects and boundary conditions (Highhouse & Gillespie, 2009), such as the distinct relevance of affective and normative commitment to military professionals and senior active reservists, and generalizability must not be confused with representativeness (Berkowitz & Donnerstein, 1982). Nevertheless, specific findings, such as the dominance of the Profession orientations, call for additional studies in the private sector to discern sample-specific findings from basic principles that apply to individual-organization relationships in general.

Furthermore, specific findings offer additional research perspectives, three of which I add here. First, I show that the strain from private obligations and from work on private life may be discerned under certain circumstances, using the B-AOF measure developed by Schuller and Rau (2013). Yet the two authors failed to do so in their attempt; the present findings suggest an adaptation of their scale to isolate these strains separately. Second, I suggest interpreting *impression management* of SD-I (Winkler et al., 2006; Paulhus, 1984) as an active behavior (Leary & Kowalski, 1990), related to voice behavior (Fuller et al., 2007). Third, I challenge the implicit assumption that work effort (De Cooman et al., 2009) is an invariably beneficial construct; on the contrary, I suggest that the construct may also include aspects of

efficiency, indicating that the optimum of the scale, in organizational – and individual – terms, is below the maximum.

7.3 Additional Cousins

Three additional suggestions for future research concern the central idea of the dissertation, that of theoretical cousins. Thus these propositions merit a subsection on their own. These propositions can be generalized into a comprehensive interpretation.

7.3.1 Organizational identities

In the framework of social identity theory, Brickson (2007, 2005, 2000) developed a construct coined *organizational identity*, as a collective identity, which is evident at the organizational level. Originally, Brickson (2000) proposed three fundamentally different identity orientations (at an individual level), which she called personal, relational, and collective, each of which differs in the locus of self-definition (individual vs. interpersonal vs. group) and basic social motivation (self-interest vs. other's interest vs. collective welfare). An experimental study among $n = 82$ undergraduate Caucasian males found some support for different behaviors according to identity orientations. (Brickson & Brewer, 2001)

Later, in a multilevel study of $n = 1\,126$ participants in $k = 88$ organizations, Brickson (2005) found that the same identity orientations exist at a group level, in the form of aggregated judgements about how the organization relates to third parties, such as customers. She found that an «organizations' orientation toward external stakeholders (e. g., ‹we are the best›, ‹we are nurturing to clients›, ‹we advance the community's welfare›) tends to parallel the orientation towards their own members (e. g., ‹expects excellence›, ‹cares for us as individuals›, and ‹promotes teamwork›, respectively)» (p. 598).

In a striking resemblance to proposition 6.1 – relating work orientations to psychological contracts– Brickson (2007) further argues that an organization's identity influences the relationships with internal stakeholders (p. 871). More concretely, she sets up 12 propositions among which the following are very much in line with proposition 6.1 (Brickson, 2007, p. 878):

> Proposition 7: Individualistic organizations are more apt . . .to manage internal relations through transactional psychological contracts, individualized socialization, and calculative HR policies and procedures.
>
> Proposition 8: Relational organizations are more apt . . .to manage internal relations through relational psychological contracts, interpersonal socialization, and relational HR policies and procedures.
>
> Proposition 9: Collectivitistic organizations are more apt . . .to manage internal relations through ideological psychological contracts, collective socialization, and collective HR policies and procedures.

Pursuing these propositions may corroborate the proposed relationship between (individual) identity relations and psychological contracts dealt with in chapter 6. Furthermore, it offers an extension of the theoretical cousins to group level analysis.

7.3.2 Job embeddedness

Job embeddedness theory provides a broad construct of factors which encourage employees to remain with an organization (Zhang, Fried, & Griffeth, 2012). Using job embeddedness to predict voluntary turnover was first proposed by Mitchell et al. (2001). An increasing number of studies shows that job embeddedness improves the prediction of voluntary turnover beyond job satisfaction, commitment, perceived alternatives, and other attitudinal variables (T. W. Lee, Burch, & Mitchell, 2014; Crossley, Bennett, Jex, & Burnfield, 2007; Mallol, Holtom, & Lee, 2007).

The job embeddedness construct consists of organizational (or on-the-job) embeddedness and community (or off-the-job) embeddedness, each with three sub-dimensions distinguishing sacrifice, links, and fit (Mitchell et al., 2001). Job embeddedness takes into consideration financial and social forces associated with withdrawal, relocation, or both (Holtom, Smith, Lindsay, & Burton, 2014). Yet the concept also relates to value congruences (ibid.).

Although job embeddedness is considered a formative construct, as opposed to a reflective construct, it does «lend itself to studying the subdimensions of links, fit, and sacrifice» (T. W. Lee et al., 2014, p. 202). I suggest that the sacrifice component relates to the transactional contract, similar to how continuance commitment is related to the constraints of economic exchange. The parallels between the links component and the relational contract, involving socio-emotional exchange, seems pretty obvious, although the findings presented in chapter 6 remind us that a mere resemblance does not suffice to establish a proper relationship. Finally, fit seems less related to ideational contracts; however, job embeddedness research has established fit involves a congruence in values (e. g., Holtom & Inderrieden, 2006; Holtom et al., 2014) or culture (e. g. Mitchell et al., 2001; Ng & Feldman, 2010).

Yet Mitchell et al. understand their measure as provisional (T. W. Lee et al., 2014) and refer to it explicitly as «still preliminary and evolving» (T. W. Lee, Mitchell, Sablynski, Burton, & Holtom, 2004, p. 790). The relationship assumed to psychological contracts may determine the direction this evolution will take, and a theory driven development may provide an additional perspective on job embeddedness. This could suggest a reflective alternative to overcome the fallacies of formative measures (Edwards, 2011).

Job embeddedness contrasts with more affect-focussed or «affect-saturated constructs», such as commitment, and focusses on contextual aspects instead (T. W. Lee et al., 2014, p. 200). Accordingly, I suggest relating the components of *organizational* embeddedness to *delivered inducements* of the psychological contract (Schurer Lambert et al., 2003), not to promises or fulfillment.

7.3.3 Aristotelean Goods

The bulk of the suggested relationships between different triadic constructs is not only impressive, but also far-reaching. As far back as the fourth century B.C. Aristotle (350 B.C./2011) referred to such a triad of motives underlying friendship as the opening quotation in chapter 1 suggested. In the sequel to this quote, Aristotle refers to the intertwining of the good, pleasant, or useful (1155b20, see the first page of this chapter).

González and Guillén (2008) suggested «an Aristotelean approach» to clarify the nature and ethical dimension of organizational commitment, by comparing components from N. J. Allen and Meyer's (1990) commitment model to the good, pleasant, and useful ends pursued in friendship (González & Guillén, 2008, p. 406). It is to these authors that I owe the integration of the *Nicomachean Ethics* into the network of theoretical cousins. Elaborating the conceptual propositions derived from the parallelism goes beyond the scope of this dissertation; rather I will address three key passages that highlight the direct relationships between the *Nicomachean Ethics* and psychological contract theory.

Aristotle repeatedly refers to *exchange* and *reciprocity*, in particular when stating «The forms of friendship, then, are three, equal in number to the things that are lovable; in accord with each is a reciprocal love that does not go unnoticed» (1156a6). Yet reciprocity lies at the heart of psychological contracts as well, and I referred to the three bases of reciprocity from the theory of embeddedness (Greenberg, 1980) to corroborate the link between psychological contracts and organizational commitment.

In addition, Aristotle notes that utility driven friendships are less stable than those where mutual exchange involves pleasure: «And those who are friends on account of utility dissolve the friendship at the same time as the advantage ceases, for they were friends not to each other but to the profit involved.» (1157a14). This mirrors exactly the different time frames associated with transactional and relational contracts (Rousseau, 1990).

Finally, Aristotle indicates that that the reasoning he applies to dyadic relations between friends may be transferred to other entities, «as in the case of cities, for alliances struck by cities seem to be for the sake of what is advantageous» (1157a27). Such abstractions are essential to translate patterns into different contexts; few employees would describe their relationship to their employer as a *friendship*; their relationship may rather be one of friendship «by way of a resemblance [to friendship in the primary and authoritative sense]» (1157a32).

7.3.4 A Grand Unified Theory of Organizational Behavior

The astonishing fact that the same multifariousness reappears across several authors, constructs and even organizational levels (see table 4.24) may point at a more fundamental pattern in Organizational Behavior. Beyond doubt, Organizational Behavior research is far from suggesting a «Grand Unified Theory», such as physicists have (so far unavailingly) tried to reach for decades in their fields. Yet in one of the very few attempts to construct such a «Grand Unified Theory of Organizational Behavior», Yammarino and Dansereau (2009) discuss two approaches. In «an entity perspective» (p. 55), analogous theories for different entities (i. e., persons, dyads, groups, and collectives) may be integrated to achieve unification. In «a variable perspective» (ibid.), several variables correspond over these levels, e. g., commitment at the personal level, investment and returns at the dyadic level, interdependence and shared mental models (!) at the group level, and titles and expectations at the collective level (pp. 15, 51). Although I perceive their suggested analogy to the four fundamental forces of modern physics (p. 55) as rather far-fetched, I agree with the author's belief «that simple ‹rules›, or ‹little ideas that are well tested›, can explain a variety of both simple and complex behavior and actions in organizations» (p. 61). Borrowing the terminology from quantum chromodynamics, where «quarks carry an additional, unobserved quantum number, called ‹color›» (Peskin & Schroeder, 1995, p. 546), with charges traditionally taken to be blue, red and green, I suggest that the *threefold of colors in different organizational behavior constructs* may provide such a simple rule or little idea to develop a more generalizable, though possibly not unified theory of Organizational Behavior.

7.4 Conclusion

Why does someone work for the armed forces? Leonhard and Biehl's (2012) introductory statement from chapter 1 anticipated the unsurprising insight that an individual's behavior rarely proves to be monocausal. Nevertheless, researchers and practitioners cling to their prevalent mental model. An anecdote may illustrate this claim. When I presented some preliminary findings in a seminar on Personnel Economics, the audience quickly agreed on the primary reason for the very low turnover rates in the Swiss Armed Forces: apparently, the employee's human capital is far too specialized for him to find adequate outside opportunities. In Leonhard and Biehl's terms, there are economic interests against leaving. The very next day, in another seminar, several psychologists explained the same findings by the obvious bonds which military personnel experiences: identification, group cohesion and demarcation from the civil society apparently constrain intentions to leave; this is what Leonhard and Biehl referred to as social inducements. If I had visited a sociologist's seminar the very same week, they would presumably have started with normative motives to explain the observed behavior. Given the thoroughness of all these social scientists I came to know and appreciate, I cannot doubt that they integrate additional perspectives into their further reasoning. Yet to take into account the complexity of human nature, multidimensional constructs such as three-layered psychological contracts,

three-component organizational commitment, or multiple work orientations may help overcome the initial – and sometimes narrow – perspective of our main interests.

What has been said for scholars is likely true for practitioners, too. In terms of mental models, attitudes, and orientations, people vary far beyond unidimensional explanations. Officers, supervisors, HR professionals, and line managers have to admit this diversity to better understand both individuals and organizations. In this regard, the idea of *colored constructs* such as Psychological Contracts, Organizational Commitments, or possibly even Organizational Identities, may serve as a versatile concept to help practitioners grasp the complexity of Organizational Behavior. This is not a pledge to strive for a «Grand Unified Managerial Strategy». Rather, acknowledging the coexistence of economic, socio-emotional, and ideological reasoning may help put into practice what Schein told us half a century ago:

> There is no one correct managerial strategy that will work for all men at all times.
>
> *Organizational Psychology* (Schein, 1965)

Appendix A

Item Catalogue

By measurement to knowledge [door meten tot weten]
I should like to write as a motto above the entrance to every physics laboratory.

Through measurement to knowledge. (Kamerlingh Onnes, 1882/1991)

This appendix lists all items of the survey used in the present study. Additionally, appendix A.3.2 suggests items for further research; however, these items were not included in the questionnaire. The questionnaire also included items that were not used for the study, for instance job embeddedness (Mitchell et al., 2001). These items are not presented in this appendix. I will provide the German, French, and Italian translations of these items on request.

In this appendix, each item is preceded by categorical information and statistics. *Item* refers to the variable used within the main part of the dissertation. *Number (No.)* is used for the internal organization of the questionnaire. *Position (Pos.)* refers to the position of the item within the questionnaire. For instance, 5.3 means that this item was on page 5 in item block 3. *Format* refers to the scale format, for instance a Likert scale. (R) means that the item was reverse-coded. In such cases, statistics refer to the reversed, that is meaningful data. +NA means that a «no answer»-option was provided. *Mean* refers to the mean value of the scale, if it is interpreted as a rational scale. If scales are interpreted as ordinal, the *median* is indicated instead. For nominal scales, the *mode* is provided. *Standard deviation (S. D.)*, *skew*, and *excess kurtosis (E. K.)* are indicated for rational scales and also for ordinal scales. Standardized moments may be calculated for ordinal scales only when they are interpreted as rational scales; nevertheless, this may be helpful to describe distributions of ordinal data. *n* refers to the number of data points available for the descriptive statistics. *Missing* percentages refer to the respective sample size, depending on attrition and the subsamples involved (see table 3.15).

A.1 Psychological Contract Items

Psychological contract items were chosen following Bingham (2005). Bingham used transactional and relational items from Rousseau's (2000) psychological contract inventory, and developed ideational items on his own.

A.1.1 Perceived promised inducements

Promised inducement items were presented blockwise in random order, with the following subsample specific remarks at the heads of pages:

item	no.	pos.	format	n
$P_{t,r,i}$	11xx	5.2/7.3	info text	2928

language	subsample	text
English	employees	*no translation*
English	reservists	*no translation*
German	employees	**Geben Sie bitte an, wozu die Schweizer Armee als Arbeitgeberin Ihnen gegenüber verpflichtet ist.** **Ich denke, die Schweizer Armee ist verpflichtet…**
German	reservists	**Geben Sie bitte an, wozu die Schweizer Armee Ihnen gegenüber verpflichtet ist.** **Ich denke, die Schweizer Armee ist verpflichtet…**
French	employees	**Veuillez indiquer quelles sont les obligations que l'armée suisse, en tant qu'employeur, a envers vous.** **Je pense que l'armée suisse a l'obligation de…**
French	reservists	**Veuillez indiquer quelles sont les obligations que l'armée suisse a envers vous.** **Je pense que l'armée suisse a l'obligation de…**
Italian	employees	**Quali sono gli obblighi dell'esercito svizzero, in veste di datore di lavoro, nei suoi confronti?** **Ritengo l'esercito svizzero sia obbligato a…**
Italian	reservists	**Quali sono gli obblighi dell'esercito svizzero nei suoi confronti?** **Ritengo l'esercito svizzero sia obbligato a…**

A.1.1.1 Transactional promised inducements.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
P_{PAY}	1111	5.3	Likert/abs.	$[-2, 2]$	1.195	1.031	−1.326	1.227	2915	0.4%

language	subsample	text
English	employees	pay me for the specific duties I perform.
English	reservists	pay me for the specific duties I perform.
German	employees	mich für meine konkreten beruflichen Aufgaben zu bezahlen.
German	reservists	mich für meine konkreten dienstlichen Aufgaben zu bezahlen.
French	employees	me payer pour mes tâches professionnelles spécifiques.
French	reservists	me payer pour mes tâches spécifiques liées au service.
Italian	employees	remunerarmi per i compiti specifici che assolvo.
Italian	reservists	remunerarmi per i compiti specifici che assolvo.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
P_{HOURS}	1112	5.3	Likert/abs.	$[-2, 2]$	−0.247	1.252	0.221	−0.881	2900	1.0%

language	subsample	text
English	all	provide a well-defined set of working hours.
German	all	mir klar definierte Arbeitszeiten vorzugeben.
French	all	définir un nombre clair d'heures de travail à faire.
Italian	all	definire un chiaro numero di ore di lavoro.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
P_{HIRED}	1113	5.3	Likert/abs.	$[-2, 2]$	1.313	0.810	-1.053	0.727	2915	0.4%

language	subsample	text
English	employees	require me to do the duties I was hired to perform.
English	reservists	require me to do the duties I was drafted to perform.
German	employees	von mir jene Aufgaben zu verlangen, für die ich angestellt worden bin.
German	reservists	von mir jene Aufgaben zu verlangen, für die ich eingeteilt worden bin.
French	employees	s'attendre à ce que je remplisse les tâches pour lesquelles j'ai été engagé.
French	reservists	s'attendre à ce que je remplisse les tâches correspondant à ma fonction.
Italian	employees	pretendere da me l'assolvimento di quei compiti per i quali sono stato assunto.
Italian	reservists	pretendere da me l'assolvimento di quei compiti che spettano alla mia funzione.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
P_{RESPO}	1114	5.3	Likert/abs.	$[-2, 2]$	1.053	0.892	-0.854	0.584	2914	0.5%

language	subsample	text
English	employees	provide a job with specific well-defined responsibilities.
English	reservists	provide a function with specific well-defined responsibilities.
German	employees	mir eine Stelle mit genau definierten Verantwortlichkeiten zu bieten.
German	reservists	mir eine Funktion mit genau definierten Verantwortlichkeiten zu bieten.
French	employees	offrir une place de travail avec des responsabilités bien définies.
French	reservists	offrir une fonction avec des responsabilités bien définies.
Italian	employees	offrirmi un impiego con responsabilità chiaramente definite.
Italian	reservists	offrirmi una funzione con responsabilità chiaramente definite.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
P_{TRAIN}	1115	5.3	Likert/abs.	$[-2, 2]$	1.341	0.815	-1.136	0.913	2919	0.3%

language	subsample	text
English	employees	train me for my specific job duties.
English	reservists	train me for my specific duties.
German	employees	mich für meine konkreten beruflichen Aufgaben auszubilden.
German	reservists	mich für meine konkreten dienstlichen Aufgaben auszubilden.
French	employees	me former pour mes tâches professionnelles spécifiques.
French	reservists	me former pour mes tâches spécifiques liées au service.
Italian	employees	offrirmi una formazione per assolvere i miei compiti specifici.
Italian	reservists	offrirmi una formazione per assolvere i miei compiti specifici.

A.1.1.2 Relational promised inducements.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
P_{WELFA}	1121	5.4	Likert/abs.	$[-2, 2]$	0.392	0.977	−0.114	−0.316	2912	0.5%

language	subsample	text
English	all	show concern for my personal welfare.
German	all	sich für mein persönliches Wohlbefinden zu interessieren.
French	all	se préoccuper de mon bien-être.
Italian	all	prendersi cura del mio benessere.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
P_{MYINT}	1122	5.4	Likert/abs.	$[-2, 2]$	0.380	1.015	−0.249	−0.291	2919	0.3%

language	subsample	text
English	all	make decisions with my interests in mind.
German	all	bei Entscheidungen meine Interessen zu beachten.
French	all	prendre en considération mes intérêts lors de prises de décisions.
Italian	all	tener conto dei miei interessi quando prende delle decisioni.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
P_{IBELO}	1123	5.4	Likert/abs.	$[-2, 2]$	0.772	0.924	−0.450	−0.121	2915	0.4%

language	subsample	text
English	employees	provide a workplace where I feel I belong.
English	reservists	provide a service environment where I feel I belong.
German	employees	mir einen Arbeitsplatz zu bieten, an dem ich mich wohl fühle.
German	reservists	mir ein Dienstumfeld zu bieten, in dem ich mich wohl fühle.
French	employees	me proposer une place de travail dans laquelle je me sens bien.
French	reservists	me proposer un environnement de service dans lequel je me sens bien.
Italian	employees	offrirmi un posto di lavoro del quale possa sentirmi parte.
Italian	reservists	offrirmi un ambiente di lavoro del quale possa sentirmi parte.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
P_{WELLB}	1124	5.4	Likert/abs.	$[-2, 2]$	0.672	0.947	−0.394	−0.136	2918	0.3%

language	subsample	text
English	all	show concern about my short and long term well-being.
German	all	sich für mein kurz- und langfristiges Wohl zu interessieren.
French	all	s'intéresser à mon bien-être à court et à long termes.
Italian	all	interessarsi del mio benessere a breve e lungo termine.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
P_{VALUE}	1125	5.4	Likert/abs.	$[-2, 2]$	1.006	0.966	−0.720	−0.061	2904	0.8%

language	subsample	text
English	all	value me as an individual.
German	all	mich als Individuum zu schätzen.
French	all	m'estimer en tant qu'individu.
Italian	all	apprezzarmi in quanto persona.

A.1.1.3 Ideational promised inducements.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
P_{INVOL}	1131	7.4	Likert/abs.	$[-2, 2]$	0.747	1.120	-0.860	0.256	2810	4.0%

language	subsample	text
English	all	provide opportunities for involvement in our cause.
German	all	mir zu ermöglichen, unserer eigentlichen Sache zu dienen.
French	all	Me donner l'opportunité de servir notre cause.
Italian	all	permettermi di servire la nostra causa.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
P_{ADVAN}	1132	7.4	Likert/abs.	$[-2, 2]$	0.773	1.219	-0.865	-0.112	2811	4.0%

language	subsample	text
English	all	commit resources toward advancing the stated cause.
German	all	alles zu tun, um diese Sache voranzubringen.
French	all	faire tout son possible pour promouvoir cette cause.
Italian	all	fare tutto il possibile per perseguire questa causa.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
P_{CULTU}	1133	7.4	Likert/abs.	$[-2, 2]$	0.918	1.094	-1.122	0.837	2812	4.0%

language	subsample	text
English	all	maintain company culture that promotes our corporate principles.
German	all	eine Kultur zu pflegen, welche unsere Prinzipien fördert.
French	all	soigner une culture qui sert notre cause.
Italian	all	attuare una politica aziendale che contribuisca alla nostra causa.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
P_{CONTR}	1134	7.4	Likert/abs.	$[-2, 2]$	0.810	1.174	-0.919	0.114	2802	4.3%

language	subsample	text
English	all	contribute to the stated cause.
German	all	zu unserer Sache beizutragen.
French	all	contribuer à cette cause.
Italian	all	contribuire a questa causa.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
P_{PUBLI}	1135	7.4	Likert/abs.	$[-2, 2]$	0.870	1.236	-0.989	0.027	2817	3.8%

language	subsample	text
English	all	act as a public advocate of the espoused cause.
German	all	in der Öffentlichkeit für diese Sache einzutreten.
French	all	Exposer cette cause au grand public.
Italian	all	sostenere pubblicamente questa causa.

A.1.2 Perceived fulfillment

Fulfillment items were presented block wise in random order, with the following subsample specific remarks at the heads of pages:

item	no.	pos.	format	n
$F_{t,r,i}$	12xx	6.1/7.5	info text	2928

language	subsample	text
English	employees	*no translation*
English	reservists	*no translation*
German	employees	**Geben Sie nun bitte an, inwiefern die Schweizer Armee als Arbeitgeberin den folgenden Verpflichtungen nachkommt.** **Die Schweizer Armee…**
German	reservists	**Geben Sie nun bitte an, inwiefern die Schweizer Armee den folgenden Verpflichtungen nachkommt.** **Die Schweizer Armee…**
French	employees	**Veuillez maintenant indiquer dans quelle mesure l'armée suisse, en tant qu'employeur, répond à ses obligations.** **L'armée suisse…**
French	reservists	**Veuillez maintenant indiquer dans quelle mesure l'armée suisse répond à ses obligations.** **L'armée suisse…**
Italian	employees	**In che misura l'esercito svizzero, in veste di datore di lavoro, adempie ai seguenti obblighi nei suoi confronti?** **L'esercito svizzero…**
Italian	reservists	**In che misura l'esercito svizzero adempie ai seguenti obblighi nei suoi confronti?** **L'esercito svizzero…**

A.1.2.1 Transactional fulfillment.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
F_{PAY}	1211	6.3	Likert/rel.+NA	$[-2, 2]$	-0.247	0.774	-0.328	0.960	2850	2.7%

language	subsample	text
English	employees	payment for the specific duties I perform.
English	reservists	payment for the specific duties I perform.
German	employees	bezahlt mich für meine konkreten beruflichen Aufgaben.
German	reservists	bezahlt mich für meine konkreten dienstlichen Aufgaben.
French	employees	me paie pour mes tâches professionnelles concrètes.
French	reservists	me paye pour mes tâches concrètes liées au service.
Italian	employees	mi paga per i compiti specifici che assolvo.
Italian	reservists	mi paga per i compiti specifici che assolvo.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
F_{HOURS}	1212	6.3	Likert/rel.+NA	$[-2, 2]$	-0.165	0.854	-0.139	0.721	2796	4.5%

language	subsample	text
English	all	a well-defined set of working hours.
German	all	gibt mir klare Vorgaben zu meiner Arbeitszeit.
French	all	me donne des directives claires concernant mon temps de travail.
Italian	all	mi dà chiare indicazioni sul mio orario di lavoro.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
F_{HIRED}	1213	6.3	Likert/rel.+NA	$[-2, 2]$	0.241	0.775	0.195	0.919	2884	1.5%

language	subsample	text
English	employees	requirement to do the duties I was hired to perform.
English	reservists	requirement to do the duties I was drafted to perform.
German	employees	erwartet von mir, jene Aufgaben zu erfüllen, für die ich angestellt worden bin.
German	reservists	erwartet von mir, jene Aufgaben zu erfüllen, für die ich eingeteilt worden bin.
French	employees	s'attend à ce que je remplisse les tâches pour lesquelles j'ai été engagé.
French	reservists	s'attend à ce que je remplisse les tâches pour lesquelles j'ai été incorporé.
Italian	employees	si aspetta che porti a termine i compiti per i quali sono stato assunto.
Italian	reservists	si aspetta che porti a termine i compiti che spettano alla mia funzione.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
F_{RESPO}	1214	6.3	Likert/rel.+NA	$[-2, 2]$	-0.151	0.752	-0.051	0.721	2896	1.1%

language	subsample	text
English	employees	a job with specific well-defined responsibilities.
English	reservists	a service environment with specific well-defined responsibilities.
German	employees	bietet mir eine Arbeit mit genau definierten Verantwortlichkeiten.
German	reservists	bietet mir ein Dienstumfeld mit genau definierten Verantwortlichkeiten.
French	employees	m'offre un travail avec des responsabilités bien définies.
French	reservists	m'offre un environnement de service avec des responsabilités bien définies.
Italian	employees	mi offre un lavoro con responsabilità chiaramente definite.
Italian	reservists	mi offre una funzione con responsabilità chiaramente definite.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
F_{TRAIN}	1215	6.3	Likert/rel.+NA	$[-2, 2]$	-0.203	0.825	-0.081	0.180	2879	1.7%

language	subsample	text
English	employees	training for my specific job duties.
English	reservists	training for my specific duties.
German	employees	bildet mich für meine konkreten beruflichen Aufgaben aus.
German	reservists	bildet mich für meine konkreten dienstlichen Aufgaben aus.
French	employees	m'instruit pour mes tâches professionnelles concrètes.
French	reservists	m'instruit pour mes tâches concrètes liées au service.
Italian	employees	mi offre una formazione per assolvere i miei compiti specifici.
Italian	reservists	mi offre una formazione per assolvere i miei compiti specifici.

A.1.2.2 Relational fulfillment.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
F_{WELFA}	1221	6.4	Likert/rel.+NA	$[-2, 2]$	-0.375	0.798	-0.197	0.028	2853	2.6%

language	subsample	text
English	all	concern shown for my personal welfare.
German	all	interessiert sich für mein persönliches Wohlbefinden.
French	all	se préoccupe de mon bien-être.
Italian	all	si prende cura del mio benessere.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
F_{MYINT}	1222	6.4	Likert/rel.+NA	$[-2, 2]$	-0.348	0.838	-0.166	-0.025	2850	2.7%

language	subsample	text
English	all	decisions made with my interests in mind.
German	all	beachtet meine Interessen bei Entscheidungen.
French	all	prend en considération mes intérêts lors de prises de décisions.
Italian	all	tiene conto dei miei interessi quando prende delle decisioni.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
F_{IBELO}	1223	6.4	Likert/rel.+NA	$[-2, 2]$	-0.001	0.793	-0.174	0.661	2887	1.4%

language	subsample	text
English	employees	a workplace where I feel I belong.
English	reservists	a service environment where I feel I belong.
German	employees	bietet mir einen Arbeitsplatz, an dem ich mich wohl fühle.
German	reservists	bietet mir ein Dienstumfeld, in dem ich mich wohl fühle.
French	employees	me propose un lieu de travail où je me sens bien.
French	reservists	me propose un environnement de service où je me sens bien.
Italian	employees	mi offre un posto di lavoro del quale mi sento parte.
Italian	reservists	mi offre un ambiente di lavoro del quale mi sento parte.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
F_{WELLB}	1224	6.4	Likert/rel.+NA	$[-2, 2]$	-0.412	0.831	-0.115	-0.130	2856	2.5%

language	subsample	text
English	all	concern about my short and long term well-being.
German	all	interessiert sich für mein kurz- und langfristiges Wohl.
French	all	s'intéresse à mon bien être à court et à long termes.
Italian	all	si interessa del mio benessere a breve e lungo termine.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
F_{VALUE}	1225	6.4	Likert/rel.+NA	$[-2, 2]$	-0.162	0.843	-0.222	0.259	2846	2.8%

language	subsample	text
English	all	value me as an individual.
German	all	schätzt mich als Individuum.
French	all	m'estime en tant qu'individu.
Italian	all	mi apprezza in quanto persona.

A.1.2.3 Ideational fulfillment.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
F_{INVOL}	1231	7.6	Likert/rel.+NA	$[-2, 2]$	-0.089	0.751	-0.099	0.909	2534	13.5%

language	subsample	text
English	all	opportunities for involvement in our cause.
German	all	ermöglicht mir, unserer eigentlichen Sache zu dienen.
French	all	Me donne l'opportunité de servir notre cause.
Italian	all	mi permette di servire la nostra causa.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
F_{ADVAN}	1232	7.6	Likert/rel.+NA	$[-2, 2]$	-0.278	0.864	0.132	-0.028	2562	12.5%

language	subsample	text
English	all	commitment of resources toward advancing the stated cause.
German	all	ermöglicht es, diese Sache voranzubringen.
French	all	fait tout son possible pour promouvoir cette cause.
Italian	all	fa tutto il possibile per perseguire la nostra causa.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
F_{CULTU}	1233	7.6	Likert/rel.+NA	$[-2, 2]$	-0.328	0.887	0.221	0.010	2554	12.8%

language	subsample	text
English	all	a company culture that promotes our corporate principles.
German	all	pflegt eine Kultur, welche unsere Prinzipien fördert.
French	all	soigner une culture qui sert notre cause.
Italian	all	attua una politica aziendale che contribuisca alla nostra causa.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
F_{CONTR}	1234	7.6	Likert/rel.+NA	$[-2, 2]$	-0.108	0.845	0.112	0.246	2557	12.7%

language	subsample	text
English	all	contributions to the stated cause.
German	all	trägt zu dieser Sache bei.
French	all	contribue à cette cause.
Italian	all	contribuisce a questa causa.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
F_{PUBLI}	1235	7.6	Likert/rel.+NA	$[-2, 2]$	-0.477	0.985	0.330	-0.295	2566	12.4%

language	subsample	text
English	all	public advocacy of the espoused cause.
German	all	tritt in der Öffentlichkeit für diese Sache ein.
French	all	Expose cette cause au grand public.
Italian	all	sostiene pubblicamente questa causa.

A.1.3 Framing for ideational contract items

Following Bingham (2005), I used one question and a text box for free comments in order to frame participants.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
CABCO	1331	7.1	Likert/abs.	[1, 5]	3.090	1.219	−0.331	−0.818	2607	11.0%

language	subsample	text
English	all	To what extent do you believe that your organization possesses a mission, cause, or set of enduring principles that extend beyond financial objectives?
German	all	Inwiefern sind Sie der Ansicht, dass die Schweizer Armee einer bestimmten Sache dient, welche über die Verfassungsaufträge hinausgeht?
French	all	Dans quelle mesure considérez-vous que l'armée sert une cause spécifique qui va au-delà des missions constitutionnelles?
Italian	all	In che misura ritiene l'esercito serva una causa che va al di là dei compiti costituzionali?

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
–	1332	7.2	free text	4096 bytes	–	–	–	–	2032	30.6%

language	subsample	text
English	all	In a few words, describe your organization's cause, mission, or set of enduring principles:
German	all	Beschreiben Sie in wenigen Worten diese Sache:
French	all	Décrivez en quelques mots cette cause:
Italian	all	Descriva in poche parole questa causa:

A.2 Commitment Items

Commitment items were chosen from the COBB battery (Fragebogen zur Erfassung von affektivem, kalkulatorischem und normativem Commitment gegenüber der Organisation, dem Beruf, der Tätigkeit und der Beschäftigungsform (COBB) Felfe et al., 2006). Some of the COBB items are translations or adaptations from Meyer et al.'s (1993) original scale. In such cases, the English original is indicated rather than a back-translation.

A.2.1 Organizational commitment

Organizational commitment items were presented blockwise in random order, with the following subsample specific remarks at the head of the page:

item	no.	pos.	format	*n*
$OC_{c,a,n}$	21xx	8.1	info text	2803

language	subsample	text
English	employees	*no translation*
English	reservists	*no translation*
German	employees	**Die folgenden Aussagen beziehen sich auf die Schweizer Armee als Ihre Arbeitgeberin.** Die vergleichbaren Aussagen zu Ihrem Beruf folgen im hinteren Teil des Fragebogens.
German	reservists	**Die folgenden Aussagen beziehen sich auf die Schweizer Armee als Milizorganisation.**
French	employees	**Les énoncés suivants font référence à l'armée suisse en tant que votre employeur.** Les énoncés analogues concernant votre activité professionnelle auprès de l'armée suisse suivront dans une autre partie du questionnaire.
French	reservists	**Les énoncés suivants font référence à l'armée suisse en tant qu'organisation de milice.**
Italian	employees	**Le seguenti affermazioni si riferiscono all'esercito svizzero in veste di datore di lavoro.** Le affermazioni analoghe riguardanti la sua attività professionale presso l'esercito svizzero seguono nell'ultima parte del questionario.
Italian	reservists	**Le seguenti affermazioni si riferiscono all'esercito svizzero in veste di organizzazione di milizia.**

A.2.1.1 Calculative organizational commitment.

OC_{DRUPT}, OC_{FEWOP}, and OC_{PMUCH} originate from Meyer et al. (1993), but Felfe et al.'s (2006) German translation was used as a point of departure.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	*n*	missing
OC_{DISAD}	2111	8.2	Likert/abs.+NA	[1, 6]	3.179	1.628	0.182	−1.137	2724	2.8%

language	subsample	text
English	all	It would be too disadvantageous for me to leave the Swiss Armed Forces now.
German	all	Es wäre mit zu vielen Nachteilen für mich verbunden, wenn ich momentan die Schweizer Armee verlassen würde.
French	all	Actuellement, il y aurait trop de désavantages pour moi si je quittais l'armée suisse.
Italian	all	Se abbandonassi ora l'esercito svizzero, sorgerebbero per me troppi svantaggi.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
OC_{DRUPT}	2112	8.2	Likert/abs.+NA	[1, 6]	3.043	1.569	0.292	−1.042	2742	2.2%

language	subsample	text
English	all	Too much of my life would be disrupted if I decided I wanted to leave the Swiss Armed Forces now.
German	all	Zu vieles in meinem Leben würde sich verändern, wenn ich die Schweizer Armee jetzt verlassen würde.
French	all	Actuellement, il y aurait trop de changements dans ma vie si je quittais l'armée suisse.
Italian	all	Se abbandonassi ora l'esercito svizzero, la mia vita subirebbe troppi mutamenti.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
OC_{FEWOP}	2113	8.2	Likert/abs.+NA	[1, 6]	3.083	1.655	0.308	−1.132	2695	3.9%

language	subsample	text
English	employees	I feel that I have too few options to consider leaving the Swiss Armed Forces.
English	reservists	*no translation*
German	employees	Ich glaube, dass ich momentan zu wenige Chancen habe, um einen Wechsel des Arbeitgebers ernsthaft in Erwägung zu ziehen.
German	reservists	Ich habe momentan keine Möglichkeit die Schweizer Armee zu verlassen.
French	employees	Je crois qu'actuellement j'ai trop peu d'alternatives pour envisager sérieusement de quitter l'armée suisse.
French	reservists	Actuellement, je n'ai pas la possibilité de quitter l'armée suisse.
Italian	employees	Ritengo di non avere abbastanza alternative per considerare seriamente di cambiare datore di lavoro.
Italian	reservists	Ritengo di non avere abbastanza alternative per considerare seriamente di abbandonare l'esercito svizzero.

Comment.
Item dropped because of low loading $\lambda = .141$ on OC_{cont} for senior active reservists.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
OC_{PMUCH}	2114	8.2	Likert/abs.+NA	[1, 6]	3.245	1.588	0.151	−1.131	2728	2.7%

language	subsample	text
English	employees	If I had not already put so much of myself into the Swiss Armed Forces, I might consider working elsewhere.
English	reservists	*no translation*
German	employees	Ich habe schon zu viel Kraft und Energie in die Schweizer Armee gesteckt, um jetzt noch an einen Wechsel zu denken.
German	reservists	Ich habe schon zu viel Kraft und Energie in die Schweizer Armee gesteckt, um jetzt noch aufzuhören.
French	employees	J'ai déjà investi tellement de force et d'énergie dans l'armée suisse qu'il m'est impossible de penser à la quitter.
French	reservists	J'ai déjà investi tellement de force et d'énergie dans l'armée suisse qu'il m'est impossible de penser à la quitter.
Italian	employees	Non posso considerare di abbandonare l'esercito svizzero, perché vi ho investito troppo tempo ed energia.
Italian	reservists	Non posso considerare di abbandonare l'esercito svizzero, perché vi ho investito troppo tempo ed energia.

A.2.1.2 Affective organizational commitment.

OC_{HAPPY}, OC_{NOEMO}, and OC_{BLONG} originate from Meyer et al. (1993), but Felfe et al.'s (2006) German translation was used as a point of departure.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	*n*	missing
OC_{HAPPY}	2121	8.3	Likert/abs.+NA	[1, 6]	4.539	1.344	−0.863	0.137	2743	2.1%

language	subsample	text
English	employees	I would be very happy to spend the rest of my career with the Swiss Armed Forces.
English	reservists	*no translation*
German	employees	Ich wäre sehr froh, mein weiteres Arbeitsleben in der Schweizer Armee verbringen zu können.
German	reservists	Ich wäre sehr froh, noch lange in der Schweizer Armee verbleiben zu können.
French	employees	Je serais très heureux de passer le reste de ma vie à travailler dans l'armée suisse.
French	reservists	Je serais très heureux de continuer à servir dans l'armée suisse.
Italian	employees	Sarei molto felice di poter restare la mia intera carriera professionale nell'esercito svizzero.
Italian	reservists	Sarei molto felice di poter restare nell'esercito svizzero.

Comment.
Item dropped because of high covariance of its error term with other variables, in order to improve model fit of the CFA.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	*n*	missing
OC_{NOEMO}	2122	8.3	Likert/abs.(R)+NA	[1, 6]	4.978	1.190	−1.244	0.982	2776	1.0%

language	subsample	text
English	all	I do not feel «emotionally attached» to this organization.
German	all	Ich fühle mich emotional nicht sonderlich mit der Schweizer Armee verbunden.
French	all	Je ne me sens émotionnellement pas particulièrement lié à l'armée suisse.
Italian	all	Non mi sento particolarmente emotivamente legato all'esercito svizzero.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	*n*	missing
OC_{PROUD}	2123	8.3	Likert/abs.+NA	[1, 6]	5.123	1.004	−1.303	1.992	2784	0.7%

language	subsample	text
English	all	I am proud to be part of the Swiss Armed Forces.
German	all	Ich bin stolz darauf, der Schweizer Armee anzugehören.
French	all	Je suis fier d'appartenir à l'armée suisse.
Italian	all	Sono fiero di far parte dell'esercito svizzero.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	*n*	missing
OC_{BLONG}	2124	8.3	Likert/abs.+NA	[1, 6]	4.805	1.141	−0.960	0.684	2784	0.7%

language	subsample	text
English	all	I [do not] feel a strong sense of «belonging» to my organization.
German	all	Ich empfinde ein starkes Gefühl der Zugehörigkeit zur Schweizer Armee.
French	all	Je ressens un fort sentiment d'appartenance à l'armée suisse.
Italian	all	Percepisco un forte senso di appartenenza nei confronti dell'esercito svizzero.

Comment.
Meyer et al.'s (1993) original was reversed, but Felfe et al.'s (2006) translation was not.

A.2.1.3 Normative organizational commitment.

OC_{NOTRI}, OC_{GUILT}, and OC_{OBLIG} originate from Meyer et al. (1993), but Felfe et al.'s (2006) German translation was used as a point of departure.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
OC_{NOTRI}	2131	8.4	Likert/abs.+NA	[1, 6]	3.431	1.623	−0.007	−1.183	2729	2.6%

language	subsample	text
English	all	Even if it were to my advantage, I do not feel it would be right to leave the Swiss Armed Forces now.
German	all	Selbst wenn es für mich vorteilhaft wäre, fände ich es nicht richtig, die Schweizer Armee zu verlassen.
French	all	Je pense que ce ne serait pas juste de quitter l'armée suisse même si c'était bénéfique pour moi.
Italian	all	Anche se ne traessi dei vantaggi, non riterrei giusto abbandonare l'esercito svizzero.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
OC_{GUILT}	2132	8.4	Likert/abs.+NA	[1, 6]	3.125	1.619	0.215	−1.148	2748	2.0%

language	subsample	text
English	all	I would feel guilty if I left the Swiss Armed Forces now.
German	all	Ich würde mich irgendwie schuldig fühlen, wenn ich die Schweizer Armee jetzt verlassen würde.
French	all	Je me sentirais un peu coupable si je quittais maintenant l'armée suisse.
Italian	all	Se abbandonassi ora l'esercito svizzero, mi sentirei colpevole.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
OC_{BADIM}	2133	8.4	Likert/abs.+NA	[1, 6]	3.719	1.552	−0.287	−0.993	2696	3.8%

language	subsample	text
English	employees	It does not make a good impression to change your employer too often.
English	reservists	*no translation*
German	employees	Es macht keinen guten Eindruck, häufiger den Arbeitgeber zu wechseln.
German	reservists	Es macht keinen guten Eindruck, die Schweizer Armee vorzeitig zu verlassen.
French	employees	Il ne fait pas bonne impression de changer souvent d'organisation.
French	reservists	Il ne fait pas bonne impression de quitter prématurément l'armée suisse.
Italian	employees	Non dà una buona impressione cambiare spesso datore di lavoro.
Italian	reservists	Non dà una buona impressione abbandonare l'esercito svizzero.

Comment.
Item dropped because of low loading on OC_{norm}.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
OC_{OBLIG}	2134	8.4	Likert/abs.+NA	[1, 6]	3.324	1.593	0.056	−1.143	2742	2.2%

language	subsample	text
English	all	I would not leave the Swiss Armed Forces right now because I have a sense of obligation to the people in it.
German	all	Ich würde die Schweizer Armee jetzt nicht verlassen, weil ich mich einigen Leuten darin verpflichtet fühle.
French	all	Je ne veux pas quitter l'armée suisse actuellement, car je me suis engagé envers certaines personnes.
Italian	all	Non abbandonerei ora l'esercito svizzero, perché mi sento obbligato nei confronti di alcune persone che ne fanno parte.

A.2.2 Vocational commitment

Vocational commitment items were presented in random order within one block, and for employees only, with the following remarks at the head of the page:

item	no.	pos.	format	n
$VC_{c,a,n}$	22xx	17.1	info text	1902

language	subsample	text
English	employees	*no translation*
German	employees	**Die folgenden Aussagen beziehen sich auf Ihre berufliche Tätigkeit bei der Schweizer Armee.** Die vergleichbaren Aussagen zur Schweizer Armee als Arbeitgeber haben sie bereits vorher beantwortet.
French	employees	**Les énoncés suivants concernent votre activité professionnelle auprès de l'armée suisse.** Vous avez déjà répondu à des énoncés analogues concernant l'armée suisse, mais en tant que votre employeur.
Italian	employees	**Le seguenti affermazioni si riferiscono alla sua attività professionale presso l'esercito svizzero.** Le affermazioni analoghe riguardanti l'esercito svizzero in veste di datore di lavoro, le avete già valutate in precedenza.

A.2.2.1 Calculative vocational commitment.

VC_{DRUPT} originates from Meyer et al. (1993), but Felfe et al.'s (2006) German translation was used as a point of departure.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
VC_{DRUPT}	2211	17.2	Likert/abs.+NA	[1, 6]	3.318	1.383	0.051	−0.816	1867	1.8%

language	subsample	text
English	employees	Too much of my life would be disrupted if I were to change my profession.
German	employees	Zuviel in meinem Leben würde durcheinander geraten, wenn ich den Beruf jetzt wechseln würde.
French	employees	Trop de choses pourraient mal tourner dans ma vie si je changeais de métier maintenant.
Italian	employees	Se cambiassi ora la mia professione, la mia vita verrebbe stravolta eccessivamente.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
VC_{NOALT}	2212	17.2	Likert/abs.+NA	[1, 6]	2.793	1.419	0.463	−0.685	1859	2.3%

language	subsample	text
English	employees	I will continue working in this occupation because there are no alternatives for me.
German	employees	Ich werde weiterhin in meinem Beruf arbeiten, weil es keine Alternativen für mich gibt.
French	employees	Je vais continuer à travailler dans mon métier, parce que je n'ai pas d'autres alternatives.
Italian	employees	Continuerò a praticare questa professione, perché non ho alternative.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
VC_{IMUCH}	2213	17.2	Likert/abs.+NA	[1, 6]	3.333	1.441	0.085	−0.920	1864	2.0%

language	subsample	text
English	employees	I have already invested too much in this occupation to seek new employment elsewhere.
German	employees	Ich habe schon zu viel in diesen Beruf investiert, um jetzt noch an einen Wechsel zu denken.
French	employees	J'ai déjà tellement investi dans mon métier qu'il m'est impossible de penser à en changer.
Italian	employees	Non posso considerare di cambiare professione, perché vi ho investito troppo tempo ed energia.

A.2.2.2 Affective vocational commitment.

VC_{PROUD}/VC_{IDENT} originate from Meyer et al. (1993), German translation by Felfe et al. (2006).

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
VC_{HAPPY}	2221	17.2	Likert/abs.+NA	[1, 6]	4.735	1.105	−1.039	1.241	1865	1.9%

language	subsample	text
English	employees	I would be happy to continue my employment in this occupation for the remainder of my working life.
German	employees	Ich wäre sehr froh, mein weiteres Arbeitsleben in diesem Beruf verbringen zu können.
French	employees	Je serais très heureux de passer le restant de ma vie à travailler dans ce métier.
Italian	employees	Sarei molto felice di poter praticare la mia intera carriera questa professione.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
VC_{PROUD}	2222	17.2	Likert/abs.+NA	[1, 6]	5.146	0.879	−1.234	2.386	1882	1.1%

language	subsample	text
English	employees	I am proud to be in the [nursing] profession.
German	employees	Ich bin stolz darauf, dass ich in diesem Beruf arbeite.
French	employees	Je suis fier de pouvoir exercer ce métier.
Italian	employees	Sono fiero di praticare questa professione.

Comment.
The original item referred to the nursing profession.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
VC_{FUTUR}	2223	17.2	Likert/abs.+NA	[1, 6]	4.770	1.075	−1.062	1.280	1884	0.9%

language	subsample	text
English	employees	I would choose to continue working in my field of activity in the future.
German	employees	Ich würde mir wünschen, meine jetzige Tätigkeit auch in Zukunft auszuüben.
French	employees	Je souhaiterais poursuivre mon activité actuelle également dans le futur.
Italian	employees	Desidero svolgere questa attività professionale anche in futuro.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
VC_{IDENT}	2224	17.2	Likert/abs.+NA	[1, 6]	5.096	0.870	−1.322	3.135	1893	0.5%

language	subsample	text
English	employees	I do not identify with the [nursing] profession.
German	employees	Mit meiner Tätigkeit kann ich mich identifizieren.
French	employees	Je peux m'identifier à mon activité.
Italian	employees	Mi identifico con la mia attività professionale.

Comment.
Item dropped because of low loading on VC_{affe}.

A.2.2.3 Normative vocational commitment.

VC_{LOYAL} and VC_{NOTRI} originate from Meyer et al. (1993), but Felfe et al.'s (2006) German translation was used as a point of departure.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
VC_{DISAP}	2231	17.2	Likert/abs.+NA	[1, 6]	3.437	1.439	−0.106	−0.957	1847	2.9%

language	subsample	text
English	employees	A lot of people who are important to me would not understand and would be disappointed in me were I to change my current field of activity or employment.
German	employees	Viele Leute, die mir wichtig sind, würden es nicht verstehen, oder wären enttäuscht, wenn ich meinen jetzigen Aufgaben- und Tätigkeitsbereich wechseln würde.
French	employees	Beaucoup de personnes importantes à mes yeux ne comprendraient pas, ou seraient déçues, si je changeais mes responsabilités et mon domaine d'activité actuels.
Italian	employees	Molte persone importanti per me non capirebbero o resterebbero deluse, se cambiassi il mio campo di attività o il mio ambito di competenza attuali.

Comment.
Item dropped because of low loading on VC_{norm}.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
VC_{LOYAL}	2232	17.2	Likert/abs.+NA	[1, 6]	3.604	1.350	−0.223	−0.682	1860	2.2%

language	subsample	text
English	employees	I think that one should remain true to one's profession.
German	employees	Ich finde, dass man seinem Beruf treu bleiben sollte.
French	employees	Je pense que l'on doit rester fidèle à son métier.
Italian	employees	Credo bisognerebbe restare fedeli alla propria professione.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
VC_{NOTRI}	2233	17.2	Likert/abs.+NA	[1, 6]	3.433	1.398	−0.077	−0.950	1851	2.7%

language	subsample	text
English	employees	Even if it were to my advantage, I do not feel that it would be right to leave [nursing] now.
German	employees	Ich glaube es wäre nicht richtig, meinen jetzigen Beruf zu wechseln auch wenn ich selbst Vorteile davon hätte.
French	employees	Je pense que ce ne serait pas juste de quitter mon métier, même si j'en retirais des avantages.
Italian	employees	Nonostante ne tragga dei vantaggi, non ritengo giusto abbandonare la mia professione.

Comment.
Item dropped because of low loading on VC_{norm}.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
VC_{BADIM}	2234	17.2	Likert/abs.+NA	[1, 6]	2.860	1.310	0.399	−0.546	1851	2.7%

language	subsample	text
English	employees	It does not make a good impression to change one's vocation.
German	employees	Es macht keinen guten Eindruck, den Beruf zu wechseln.
French	employees	Il ne fait pas bonne impression de changer de métier.
Italian	employees	Non dà una buona impressione cambiare spesso professione.

A.3 Work Orientation Items

Work orientation has first been operationalized as a set of three types by Wrzesniewski et al. (1997). The authors provided both single item measures for each orientation type and a set of 18 true-false items, correlating idiosyncratically with the three orientation types. Due to survey length constraints, only the three single item measures were integrated into the present dissertation; however, the true-false items were also translated, as a proposal for further research.

A.3.1 Single items

The originals of the WO_{jb}, WO_{cr}, and WO_{cg} items are provided by Wrzesniewski et al. (1997). The German translation for these three items was provided by Harzer and Ruch (2012). In contrast, I have developed the WO_{pn} on my own, according to the procedure described in chapter 6.3.1. A non-validated English translation of this item is provided subsequently. Each of the four work orientation items was presented on a single page, and the four pages were presented randomly for every participant.

A.3.1.1 The Job item.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
WO_{jb}	3111	12–15	Likert/abs.	[0, 3]	0.518	0.755	1.373	1.203	2733	2.1%

language	subsample	text
English	all	Mr. A works primary to earn enough money to support his life outside of his job. If he was financially secure, he would no longer continue with his current line of work, but would really rather do something else instead. Mr. A's job is basically a necessity of life, a lot like breathing or sleeping. He often wishes the time would pass more quickly at work. He greatly anticipates weekends and vacations. If Mr. A lived his life over again, he probably would not go into the same line of work. He would not encourage his friends and children to enter his line of work. Mr. A is very eager to retire.
German	all	Person A arbeitet hauptsächlich deswegen, um genug Geld für ihr Leben ausserhalb des Berufs zu verdienen. Wenn sie finanziell abgesichert wäre, würde sie nicht länger ihrem derzeitigen Beruf nachgehen, sondern würde stattdessen wirklich etwas anderes machen. Person A's Beruf ist für sie grundsätzlich eine Notwendigkeit des Lebens, sehr ähnlich wie atmen oder schlafen. Sie wünscht sich oft, dass die Zeit bei der Arbeit schneller vergehen würde. Sie freut sich sehr auf Wochenenden und Ferien. Wenn Person A ihr Leben nochmals leben könnte, würde sie vermutlich nicht nochmals den gleichen Berufsweg einschlagen. Sie würde ihren Freunden und Kindern nicht zu ihrem Berufsweg raten. Sie sehnt sich sehr danach, pensioniert zu werden.
French	all	La personne A travaille principalement pour gagner assez d'argent pour vivre, indépendamment du métier. Si elle était financièrement à l'abri, elle changerait de métier. Le métier de la personne A est en principe une nécessité pour la vie, tout comme respirer et dormir. Elle souhaite souvent que le temps au travail passe plus vite. Elle a hâte d'être en week-end ou en vacances. Si la personne A pouvait refaire sa vie, elle ne reprendrait pas le même chemin. Elle ne conseillerait pas cette carrière à ses amis et enfants. Elle n'attend plus que la retraite.
Italian	all	La persona A lavora principalmente con lo scopo di guadagnare abbastanza soldi per la sua vita privata. Se fosse finanziariamente indipendente, non praticherebbe più la sua attuale professione, ma si dedicherebbe ad altre attività. Il lavoro della persona A è per lei di vitale importanza, quasi come respirare o dormire. Spesso desidera che il tempo al lavoro possa trascorrere più velocemente. Non vede l'ora che arrivino il weekend e le vacanze. Se la persona A potesse rivivere la sua vita, probabilmente eviterebbe di intraprendere lo stesso percorso professionale. Sconsiglierebbe ai sui amici e ai suoi figli di seguire quella strada. Attende con ansia la pensione.

A.3.1.2 The Career item.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
WO_{cr}	3121	12–15	Likert/abs.	[0, 3]	1.205	0.982	0.285	−0.986	2734	2.1%

language	subsample	text
English	all	Mr. B basically enjoys his work, but does not expect to be in his current job five years from now. Instead, he plans to move on to a better, higher level job. He has several goals for his future pertaining to the positions he would eventually like to hold. Sometimes his work seems a waste of time, but he knows that he must do sufficiently well in his current position in order to move on. Mr. B can't wait to get a promotion. For him, a promotion means recognition of his good work, and is a sign of his success in competition with his coworkers.
German	all	Grundsätzlich erfreut sich Person B an ihrem Beruf, aber sie erwartet nicht, ihren augenblicklichen Job auch noch in fünf Jahren ab jetzt auszuüben. Stattdessen plant sie, in eine bessere, höhere Position aufzusteigen. Sie hat etliche Ziele für die Zukunft, was berufliche Positionen angeht, die sie eventuell ausüben möchte. Manchmal scheint ihre Arbeit wie eine Zeitverschwendung, aber sie weiss, dass sie bei ihren augenblicklichen Aufgaben ausreichend gut sein muss, um voranzukommen. Person B kann es nicht erwarten, befördert zu werden. Für sie ist eine Beförderung eine Anerkennung ihrer guten Arbeit und ein Zeichen ihres Erfolgs im Vergleich zu ihren MitarbeiterInnen.
French	all	Fondamentalement, la personne B se sent bien à son travail, mais elle ne se voit pas l'exercer pendant encore cinq ans. Au lieu de cela, elle prévoit de se hisser à une meilleure et plus haute position. Elle a plusieurs plans pour l'avenir concernant des métiers qu'elle aimerait exercer. Son travail lui semble être parfois une perte de temps, mais elle sait qu'elle doit être suffisamment compétente dans ses tâches actuelles pour aller de l'avant. La personne B est impatiente d'avoir une promotion. Pour elle, une promotion est une reconnaissance de son bon travail et un signe de succès par rapport à ses collaborateurs.
Italian	all	Fondamentalmente alla persona B piace la sua professione, ma non si aspetta di praticarla anche tra cinque anni. Al contrario, ha intenzione di accedere ad una posizione più alta e migliore. Ha parecchi obiettivi per il futuro per quanto riguarda posizioni professionali che vorrebbe raggiungere. Talvolta il suo lavoro le sembra una perdita di tempo, ma sa di dover mostrarsi abbastanza capace nell'adempire i suoi compiti attuali per poter salire la scala gerarchica. La persona B non vede l'ora di essere promossa. Per lei una promozione significa un riconoscimento per il buon lavoro svolto e un segno del suo successo nei confronti dei colleghi.

A.3.1.3 The Calling item.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
WO_{cg}	3131	12–15	Likert/abs.	$[0, 3]$	1.380	0.898	0.087	-0.769	2739	1.9%

language	subsample	text
English	all	Mr. C's work is one of the most important parts of his life. He is very pleased that he is in this line of work. Because what he does for a living is a vital part of who he is, it is one of the first things he tells people about himself. He tends to take his work home with him and on vacations, too. The majority of his friends are from his place of employment, and he belongs to several organizations and clubs relating to his work. Mr. C feels good about his work because he loves it, and because he thinks it makes the world a better place. He would encourage his friends and children to enter his line of work. Mr. C would be pretty upset if he were forced to stop working, and he is not particularly looking forward to retirement.
German	all	Für Person C ist Arbeit einer der wichtigsten Bestandteile ihres Lebens. Sie ist sehr zufrieden mit dem Berufsweg, den sie geht. Womit sie ihren Lebensunterhalt verdient, ist ein grundlegender Teil von ihr, so dass sie dies anderen als eines der ersten Dinge von sich erzählt. Sie neigt dazu, sich Arbeit mit nach Hause und auch in die Ferien zu nehmen. Den Grossteil ihrer Freunde kennt sie von ihrem Arbeitsplatz und sie gehört verschiedenen Organisationen und Clubs an, die in Bezug zu ihrer Arbeit stehen. Person C fühlt sich mit ihrer Arbeit wohl, weil sie diese liebt und weil sie der Meinung ist, dass diese die Welt zu einem besseren Ort macht. Sie würde ihre Freunde und Kinder dazu ermutigen, ihren Berufsweg einzuschlagen. Person C wäre ziemlich traurig, wenn sie gezwungen wäre, aufzuhören zu arbeiten und freut sich nicht besonders auf ihre Pensionierung.
French	all	Le travail est, pour la personne C, l'un des principaux composants de sa vie. Elle est très heureuse avec son choix de carrière. Son métier est un élément fondamental pour elle, de sorte qu'elle l'évoque en premier lorsqu'elle parle d'elle-même. Elle a tendance à prendre du travail à la maison et en vacances. La majorité de ses amis proviennent de son travail et elle fait partie de diverses associations et clubs qui sont liés à son travail. La personne C se sent bien dans son travail, parce qu'elle aime celui-ci et parce qu'elle est d'avis qu'elle rend le monde meilleur. Elle encouragerait ses amis et ses enfants à suivre cette carrière. La personne C serait plutôt triste si elle était obligée d'arrêter de travailler et ne se réjouit pas particulièrement d'être à la retraite.
Italian	all	Per la persona C il lavoro è una delle parti più importanti della vita. È estremamente soddisfatta del suo percorso professionale. Come si guadagna da vivere è per lei talmente fondamentale, che è una delle prime cose che racconta di sé ad altri. È incline a portarsi il lavoro a casa e anche in vacanza. La maggior parte dei suoi amici li ha conosciuti sul posto di lavoro e fa parte di diverse organizzazioni e club in relazione con il suo mestiere. La persona C si sente bene con il suo lavoro, perché lo ama e perché crede renda il modo un posto migliore. Incoraggerebbe amici e i suoi figli a seguire lo stesso percorso professionale. La persona C sarebbe triste se fosse obbligata a smettere di lavorare e non si rallegra particolarmente di dover andare in pensione.

A.3.1.4 The Profession item.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
WO_{pn}	3141	12–15	Likert/abs.	[0, 3]	2.222	0.801	−0.804	0.061	2741	1.8%

language	subsample	text
English	all	Mr. D identifies himself with his work. He regards his choice of employment as a long term decision and invested years of education in order to pursue this career. Being able to improve himself is important to him. He will thus join associations and attend gatherings in order to exchange information with colleagues. He tends to compare himself with professional counterparts rather than other people. [Being autonomous in his every day work is important to Mr. D.] His work must represent ethics and moral values. Since only few people are qualified to carry out his profession, Mr. D regards his work as service to the wider society.
German	all	Person D identifiziert sich mit ihrem Beruf. Für sie ist die Berufswahl eine langfristige Entscheidung. Sie hat eine lange Ausbildung dafür in Kauf genommen, diese Arbeit auszuüben. Es ist ihr sehr wichtig, sich in ihrem Gebiet ständig zu verbessern und sie tauscht sich dazu mit Berufskollegen in Verbänden und Vereinen aus. Sie vergleicht sich eher mit Berufskollegen als mit Leuten aus anderen Berufen. [Freiheit in der täglichen Arbeit ist für Person D ein wichtiges Anliegen.] Mit ihrer Arbeit ist auch eine klare Vorstellung von Ethik und Werten verbunden. Weil nur wenige Personen diesen Beruf überhaupt ausüben können, versteht Person D Ihre Arbeit auch als eine Art Dienst an der Allgemeinheit.
French	all	La personne D s'identifie à son métier. Pour elle, le choix du métier est une décision essentielle à long terme. Pour exercer ce métier, elle a accepté de suivre une longue formation. Il est très important pour elle de constamment s'améliorer dans son domaine et aime par conséquent partager ses expériences avec des collègues de travail dans des associations ou clubs relatifs à son métier. Elle se compare plutôt avec des collègues de travail qu'avec des gens d'autres professions. [La liberté dans son travail quotidien est pour la personne D une préoccupation importante.] Une conception claire de l'éthique et des valeurs doit également être liée à son travail. Etant donné qu'un nombre réduit de personnes est capable d'exercer son métier, la personne D considère son travail comme un service rendu à la communauté.
Italian	all	La persona D si identifica con il suo lavoro. Per lei la scelta della professione è essenziale sul lungo termine. Ha accettato di assolvere una lunga formazione per poter esercitare questo mestiere. Per lei è molto importante evolvere continuamente nel suo campo e, per ottenere ciò, cerca uno scambio costante con colleghi all'interno di associazioni e società. Preferisce confrontarsi con colleghi anziché con persone che praticano altre professioni. [Essere autonoma al lavoro è per lei molto importante.] La sua professione è collegata ad una chiara concezione di etica e valori. Visto che solo poche persone sono in grado di esercitare questo mestiere, lei concepisce il suo lavoro come una sorta di servizio alla comunità.

Comment.
To reduce the high approval rating, a suggest dropping the fragment «Being autonomous in his every day work is important to Mr. D.» in further research.

A.3.2 True-false items

The originals of the *jb*-, *cr*-, and *cg*-related items (Wrzesniewski et al., 1997) and the corresponding, unvalidated translations are provided here as a means for further studies. The *pn*-related items are derived from the WO_{pn} item in a similar manner. Wrzesniewski et al. (1997) asked participants to answer the items with «true» or «false». However, using Likert scales instead could possibly allow for a factor analysis approach to the work orientations construct.

A.3.2.1 Job-related items.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	*n*	missing
–	3211	–	Boolean	{0, 1}	–	–	–	–	0	100.0%

language	subsample	text
English	all	I am eager to retire.
German	all	Ich kann es kaum erwarten, pensioniert zu werden.
French	all	Je suis impatient d'être à la retraite.
Italian	all	Non vedo l'ora di andare in pensione.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	*n*	missing
–	3212	–	Boolean	{0, 1}	–	–	–	–	0	100.0%

language	subsample	text
English	all	I am very conscious of what day of the work week it is and I greatly anticipate weekends. I say, «Thank God it's Friday!».
German	all	Ich weiss immer genau, welchen Wochentag wir haben und ich freue mich sehr auf die Wochenende. Ich sage «zum Glück ist heute Freitag!».
French	all	J'ai toujours conscience de quel jour de la semaine de travail nous sommes et je me réjouis du week-end. Je me dis: «Merci mon Dieu, c'est vendredi !».
Italian	all	So sempre che giorno della settimana lavorativa sia e attendo con ansia il weekend. Mi dico «Grazie a Dio è venerdì!».

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	*n*	missing
–	3213	–	Boolean	{0, 1}	–	–	–	–	0	100.0%

language	subsample	text
English	all	My primary reason for working is financial – to support my family and lifestyle.
German	all	Meine primäre Motivation zum Arbeiten ist finanziell – um meine Familie und meinen Lebensstil zu unterhalten.
French	all	La raison principale pour laquelle je travaille est financière – pour soutenir ma famille et mon mode de vie.
Italian	all	La principale ragione per la quale lavoro e economica – per sostenere la mia famiglia e il mio stile di vita.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	*n*	missing
–	3214	–	Boolean	{0, 1}	–	–	–	–	0	100.0%

language	subsample	text
English	all	When I am not at work, I do not think much about my work.
German	all	Wenn ich nicht auf der Arbeit bin, denke ich nicht viel über meine Arbeit nach.
French	all	Lorsque je ne suis pas au travail, je n'y pense pas beaucoup.
Italian	all	Quando non sono al lavoro non penso molto al mio lavoro.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
–	3215	–	Boolean	$\{0, 1\}$	–	–	–	–	0	100.0%

language	subsample	text
English	all	I view my job as just a necessity of life, much like breathing or sleeping.
German	all	Meine Arbeit ist für mich grundsätzlich eine Notwendigkeit zum Leben, etwa wie atmen oder schlafen.
French	all	Je considère mon travail seulement comme une nécessité vitale, comme respirer ou dormir.
Italian	all	Vedo il mio lavoro come una necessità della vita, come respirare o dormire.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
–	3216	–	Boolean	$\{0, 1\}$	–	–	–	–	0	100.0%

language	subsample	text
English	all	I never take work home with me.
German	all	Ich nehme niemals Arbeit mit nach Hause.
French	all	Je ne prends jamais de travail à la maison.
Italian	all	Non mi porto mai il lavoro a casa.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
–	3217	–	Boolean	$\{0, 1\}$	–	–	–	–	0	100.0%

language	subsample	text
English	all	I would not encourage young people to pursue my kind of work.
German	all	Ich würde junge Leute nicht ermuntern, meinen Beruf zu ergreifen.
French	all	Je n'encouragerais pas des jeunes gens à emprunter ma voie professionnelle.
Italian	all	Non incoraggerei la gente giovane ad intraprendere la mia carriera.

A.3.2.2 Career-related items.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	*n*	missing
–	3221	–	Boolean	{0, 1}	–	–	–	–	0	100.0%

language	subsample	text
English	all	I expect to be in a higher level job in five years.
German	all	Ich erwarte es, in fünf Jahren in einer höheren Position zu sein als heute.
French	all	Je m'attends à avoir un travail de classe supérieur dans cinq ans.
Italian	all	Mi aspetto di avere un lavoro di classe più alta in cinque anni.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	*n*	missing
–	3222	–	Boolean	{0, 1}	–	–	–	–	0	100.0%

language	subsample	text
English	all	I view my job primarily as a stepping stone to other jobs.
German	all	Ich sehe meine Arbeit in erster Linie als Etappe zu einer anderen Arbeit.
French	all	Je considère mon travail comme un tremplin pour d'autres professions.
Italian	all	Vedo il mio lavoro come una tappa verso altri lavori.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	*n*	missing
–	3223	–	Boolean (R)	{0, 1}	–	–	–	–	0	100.0%

language	subsample	text
English	all	I expect to be doing the same work in five years.
German	all	Ich erwarte die selbe Arbeit in fünf Jahren noch zu tun.
French	all	Je m'attends à avoir le même travail dans cinq ans.
Italian	all	Mi aspetto di avere lo stesso lavoro tra cinque anni.

A.3.2.3 Calling-related items.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
–	3231	–	Boolean	$\{0, 1\}$	–	–	–	–	0	100.0%

language	subsample	text
English	all	I find my work rewarding.
German	all	Meine Arbeit erfüllt mich.
French	all	Je trouve que mon travail en vaut la peine.
Italian	all	Trovo il mio lavoro gratificante.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
–	3232	–	Boolean	$\{0, 1\}$	–	–	–	–	0	100.0%

language	subsample	text
English	all	My work makes the world a better place.
German	all	Meine Arbeit macht die Welt zu einem besseren Ort.
French	all	Mon travail rend le monde meilleur.
Italian	all	Il mio lavoro rende il mondo un posto migliore.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
–	3233	–	Boolean	$\{0, 1\}$	–	–	–	–	0	100.0%

language	subsample	text
English	all	I tend to take my work with me on vacations.
German	all	Ich neige dazu Arbeit mit in die Ferien zu nehmen.
French	all	J'ai tendance à prendre du travail avec moi pendant les vacances.
Italian	all	Tendo a portarmi il lavoro in vacanza.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
–	3234	–	Boolean	$\{0, 1\}$	–	–	–	–	0	100.0%

language	subsample	text
English	all	I would choose my current work life again if I had the opportunity.
German	all	Ich würde mein aktuelles Berufsleben wieder wählen, wenn ich die Gelegenheit hätte.
French	all	Je choisirais à nouveau ma profession actuelle si j'en avais l'opportunité.
Italian	all	Se avessi l'occasione, sceglierei di nuovo questa carriera.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
–	3235	–	Boolean	$\{0, 1\}$	–	–	–	–	0	100.0%

language	subsample	text
English	all	I feel in control of my work life.
German	all	Ich habe mein Berufsleben im Griff.
French	all	J'ai l'impression de contrôler ma vie professionnelle.
Italian	all	*no translation*

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
–	3236	–	Boolean	$\{0, 1\}$	–	–	–	–	0	100.0%

language	subsample	text
English	all	I enjoy talking about my work to others.
German	all	Ich liebe es, mit anderen über meine Arbeit zu reden.
French	all	J'aime parler de mon travail aux autres.
Italian	all	Mi fa piacere parlare con altri della mia professione.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	*n*	missing
–	3237	–	Boolean	{0, 1}	–	–	–	–	0	100.0%

language	subsample	text
English	all	If I was financially secure, I would continue with my current line of work even if I was no longer paid.
German	all	Wenn ich finanziell abgesichert wäre, würde ich mit meiner jetztigen Arbeit sogar dann weiterfahren, wen ich keinen Lohn mehr dafür erhielte.
French	all	Si mes finances étaient assurées, je continuerais à exercer ma profession même si je n'étais plus payé.
Italian	all	Se fossi finanziariamente stabile, continuerei la mia attuale carriera, anche se non venissi più pagato.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	*n*	missing
–	3238	–	Boolean	{0, 1}	–	–	–	–	0	100.0%

language	subsample	text
English	all	My work is one of the most important things in my life.
German	all	Meine Arbeit ist etwas vom Wichtigsten in meinem Leben.
French	all	mon travail est l'une des choses les plus importantes de ma vie.
Italian	all	Il mio lavoro è una delle cose più importanti della mia vita.

A.3.2.4 Profession-related items.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
–	3241	–	Boolean	{0, 1}	–	–	–	–	0	100.0%

language	subsample	text
English	all	*no translation*
German	all	Ich habe eine lange Ausbildung in Kauf genommen, um meine Arbeit auszuüben.
French	all	J'ai accepté de suivre une longue formation pour exercer ce métier.
Italian	all	Ho accettato di assolvere una lunga formazione per poter esercitare questo mestiere.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
–	3242	–	Boolean	{0, 1}	–	–	–	–	0	100.0%

language	subsample	text
English	all	*no translation*
German	all	Ich tausche mich beruflich in Verbänden oder Vereinen aus.
French	all	Je fais partie de diverses associations et clubs relatifs à mon métier.
Italian	all	Cerco uno scambio costante con colleghi all'interno di associazioni e società.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
–	3243	–	Boolean	{0, 1}	–	–	–	–	0	100.0%

language	subsample	text
English	all	*no translation*
German	all	Die Autonomie in der Berufsausübung ist für mich ein wichtiges Anliegen.
French	all	L'autonomie dans l'exercice de mon métier est pour moi une préoccupation importante.
Italian	all	Essere autonoma/o al lavoro è per me molto importante.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
–	3244	–	Boolean	{0, 1}	–	–	–	–	0	100.0%

language	subsample	text
English	all	*no translation*
German	all	Ich vergleiche mich eher mit Berufskollegen als mit Leuten aus anderen Berufen.
French	all	Je me compare plutôt avec des collègues de travail qu'avec des gens faisant d'autres professions.
Italian	all	Preferisco confrontarmi con colleghi anziché con persone che praticano altre professioni.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
–	3245	–	Boolean	{0, 1}	–	–	–	–	0	100.0%

language	subsample	text
English	all	*no translation*
German	all	Mit meiner Arbeit ist eine klare Vorstellung von Ethik und Werten verbunden.
French	all	Une conception claire de l'éthique et des valeurs doit être liée à mon métier.
Italian	all	La mia professione è collegata ad una chiara concezione di etica e valori.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
–	3246	–	Boolean	{0, 1}	–	–	–	–	0	100.0%

language	subsample	text
English	all	*no translation*
German	all	Es ist mir sehr wichtig, mich in meinem Gebiet ständig zu verbessern.
French	all	C'est très important pour moi de m'améliorer continuellement dans mon domaine.
Italian	all	Per me è molto importante evolvere continuamente nel mio campo.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	*n*	missing
–	3247	–	Boolean	{0, 1}	–	–	–	–	0	100.0%

language	subsample	text
English	all	*no translation*
German	all	Ich identifiziere mich mit meinem Beruf.
French	all	Je m'identifie à mon métier.
Italian	all	*no translation*

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	*n*	missing
–	3248	–	Boolean	{0, 1}	–	–	–	–	0	100.0%

language	subsample	text
English	all	*no translation*
German	all	Für mich ist die Berufswahl eine langfristige Angelegenheit.
French	all	Pour moi, le choix du métier est une décision essentielle sur le long terme.
Italian	all	Per me la scelta della professione è essenziale sul lungo termine.

A.4 Outcome Variables

A.4.1 Working hours

Working hours of senior active reservists were asked separately and in more detail. Herein, only statistics for employees are indicated.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
HOURS	4110	5.1	ratio	[12, 90]	48.463	7.668	0.595	3.466	2081	0.0%

language	subsample	text
English	all	On average, how many hours did you work per week during the last 6 months?
German	all	Wie viele Stunden haben Sie in den letzten 6 Monaten durchschnittlich pro Arbeitswoche gearbeitet?
French	all	Au cours des 6 derniers mois, combien d'heures avez-vous travaillé en moyenne par semaine?
Italian	all	Quante ore a settimana ha lavorato in media negli ultimi 6 mesi?

A.4.2 Work satisfaction

Work satisfaction was measured on a single-item scale.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
JS	4210	11.1	Likert/abs.	[1, 10]	7.378	1.643	−1.168	1.598	2686	4.8%

language	subsample	text
English	employees	All in all, how satisfied are you with your current work/employment on a range between 1 and 10 (1 being completely dissatisfied, 10 being completely satisfied).
English	reservists	All in all, how satisfied are you with your current military service on a range between 1 and 10 (1 being completely dissatisfied, 10 being completely satisfied).
German	employees	Wie zufrieden sind Sie alles in allem mit Ihrer Arbeit/Stelle, auf einer Skala von 1 bis 10, in der 1 vollkommen unzufrieden und 10 vollkommen zufrieden bedeutet?
German	reservists	Wie zufrieden sind Sie alles in allem mit Ihrem Militärdienst, auf einer Skala von 1 bis 10, in der 1 vollkommen unzufrieden und 10 vollkommen zufrieden bedeutet?
French	employees	Sur une échelle de 1 à 10, 1 étant la plus mauvaise note et 10 la meilleure, quelle est votre satisfaction concernant votre travail/votre poste?
French	reservists	Sur une échelle de 1 à 10, 1 étant la plus mauvaise note et 10 la meilleure, quelle est votre satisfaction concernant votre service auprès de l'armée suisse?
Italian	employees	Qual è il suo grado di soddisfazione complessivo rispetto al suo lavoro / posto di lavoro su una scala da 1 a 10, in cui 1 è totalmente insoddisfatta/o e 10 è totalmente soddisfatta/o?
Italian	reservists	Qual è il suo grado di soddisfazione complessivo rispetto al suo servizio su una scala da 1 a 10, in cui 1 è totalmente insoddisfatta/o e 10 è totalmente soddisfatta/o?

A.4.3 Turnover intention

Turnover intention was measured for employees only, using three items by Bozeman and Perrewé (2001). The following information text preceded the three items:

item	no.	pos.	format	n
TI	431x	10.2	info text	2002

language	subsample	text
English	all	*no translation*
German	all	**Die folgenden Aussagen beziehen sich auf die Schweizer Armee als Ihre Arbeitgeberin.**
French	all	**Les énoncés suivants font référence à l'armée suisse en tant que votre employeur.**
Italian	all	**Le seguenti affermazioni si riferiscono all'esercito svizzero in veste di datore di lavoro.**

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
TI_{FUTURE}	4311	10.3	Likert/abs.+NA	[1, 6]	2.317	1.373	0.928	0.094	1926	3.8%

language	subsample	text
English	all	I will probably look for a new job in the near future.
German	all	Ich werde in naher Zukunft vermutlich nach einer neuen Stelle bei einem anderen Arbeitgeber suchen.
French	all	Dans un proche avenir, il est probable que je recherche un nouveau poste de travail chez un nouvel employeur.
Italian	all	Presumibilmente cercherò un nuovo posto di lavoro in un prossimo futuro

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
TI_{ACTIVE}	4312	10.3	Likert/abs.+NA	[1, 6]	1.837	1.232	1.652	2.222	1943	2.9%

language	subsample	text
English	all	I am currently in the process of trying to leave this job.
German	all	Im Moment bin ich aktiv auf der Suche nach einer neuen Stelle bei einem anderen Arbeitgeber.
French	all	Actuellement, je recherche activement un nouveau poste de travail chez un nouvel employeur.
Italian	all	Al momento sto cercando attivamente un nuovo posto di lavoro

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
TI_{NOPLAN}	4313	10.3	Likert/abs.(R)+NA	[1, 6]	2.616	1.642	0.809	−0.578	1951	2.5%

language	subsample	text
English	all	I do not intend to leave my current job.
German	all	Ich plane nicht, meinen aktuellen Arbeitgeber zu verlassen.
French	all	Je ne prévois pas de quitter mon employeur actuel.
Italian	all	Non ho in programma di lasciare il mio posto di lavoro attuale

A.4.4 Work effort

Work effort was measured using the scale by (De Cooman et al., 2009). The items were presented in random order on one page, preceded by the following information text.

item	no.	pos.	format	n
WE	44xx	9.1	info text	2820

language	subsample	text
English	employees	*no translation*
English	reservists	*no translation*
German	employees	**Die folgenden Aussagen beziehen sich auf Ihre berufliche Tätigkeit bei der Schweizer Armee.**
German	reservists	**Die folgenden Aussagen beziehen sich auf Ihre Miliztätigkeit bei der Schweizer Armee.**
French	employees	**Les énoncés suivants concernent votre activité professionnelle auprès de l'armée suisse.**
French	reservists	**Les énoncés suivants concernent votre activité de milice auprès de l'armée suisse.**
Italian	employees	**Le seguenti affermazioni si riferiscono alla sua attività professionale presso l'esercito svizzero.**
Italian	reservists	**Le seguenti affermazioni si riferiscono al suo servizio presso l'esercito svizzero.**

A.4.4.1 Work effort: intensity.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
$WE\text{-}I_{\text{HARDW}}$	4411	9.2	Likert/abs.+NA	$[1, 6]$	4.954	0.841	-0.612	0.626	2776	1.6%

language	subsample	text
English	all	I think of myself as a hard worker.
German	all	Ich sehe mich als hart arbeitenden Menschen.
French	all	Je me considère comme une personne qui travaille dur.
Italian	all	Mi ritengo un dedito lavoratore.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
$WE\text{-}I_{\text{MBEST}}$	4412	9.2	Likert/abs.+NA	$[1, 6]$	5.299	0.713	-0.969	1.747	2795	0.9%

language	subsample	text
English	employees	I really do my best in my job.
English	reservists	I really do my best on duty.
German	employees	Bei meiner Arbeit gebe ich wirklich mein Bestes.
German	reservists	Bei meiner Dienstleistung gebe ich wirklich mein Bestes.
French	employees	Je donne le meilleur de moi-même dans mon travail.
French	reservists	Je donne le meilleur de moi-même pendant le service.
Italian	employees	Al lavoro do sempre il meglio di me.
Italian	reservists	Durante il servizio do sempre il meglio di me.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
$WE\text{-}I_{\text{ENRGY}}$	4413	9.2	Likert/abs.+NA	[1, 6]	5.206	0.744	−0.863	1.543	2798	0.8%

language	subsample	text
English	all	I put a lot of energy into the tasks that I commence.
German	all	Ich stecke jeweils viel Energie in neue Aufgaben.
French	all	Je mets beaucoup d'énergie dans chaque nouvelle tâche.
Italian	all	Impiego sempre molta energia nei nuovi compiti che mi vengono affidati.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
$WE\text{-}I_{\text{EQUAL}}$	4414	9.2	Likert/abs.+NA	[1, 6]	4.639	0.978	−0.685	0.651	2791	1.0%

language	subsample	text
English	employees	I always exert equally hard during the execution of my job.
English	reservists	I always exert equally hard during the execution of my duty.
German	employees	Bei meiner beruflichen Tätigkeit strenge ich mich immer gleich stark an.
German	reservists	Bei meiner dienstlichen Tätigkeit strenge ich mich immer gleich stark an.
French	employees	Je maintiens toujours la même intensité d'effort dans l'exercice de mes fonctions.
French	reservists	Je maintiens toujours la même intensité d'effort dans l'exercice de mes fonctions.
Italian	employees	Svolgo il mio lavoro sempre con lo stesso impegno.
Italian	reservists	Svolgo il mio servizio sempre con lo stesso impegno.

A.4.4.2 Work effort: direction.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
$WE\text{-}D_{\text{EXPEC}}$	4421	9.2	Likert/abs.+NA	[1, 6]	5.374	0.691	−1.135	2.554	2808	0.4%

language	subsample	text
English	all	I do my best to do what is expected of me.
German	all	Ich gebe mein Bestes um zu leisten, was von mir erwartet wird.
French	all	Je donne le meilleur de moi-même pour atteindre ce qui est attendu de moi.
Italian	all	Do il massimo per soddisfare le aspettative nei miei confronti.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
$WE\text{-}D_{\text{TRUST}}$	4422	9.2	Likert/abs.+NA	[1, 6]	5.449	0.626	−0.997	2.082	2799	0.7%

language	subsample	text
English	all	I am trustworthy in the execution of the tasks that are assigned to me.
German	all	Ich bin zuverlässig bei der Ausführung der Aufgaben, die mir zugewiesen werden.
French	all	Je suis fiable dans l'exécution des tâches qui me sont confiées.
Italian	all	Sono affidabile nello svolgimento dei compiti che mi vengono affidati.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
$WE\text{-}D_{\text{OBJEC}}$	4423	9.2	Likert/abs.+NA	[1, 6]	5.143	0.783	−0.880	1.466	2775	1.6%

language	subsample	text
English	all	I really do my best to achieve the objectives of the organization.
German	all	Ich gebe wirklich mein Bestes, um die Ziele der Schweizer Armee zu erreichen.
French	all	Je donne vraiment le meilleur de moi-même pour atteindre les objectifs de l'armée suisse.
Italian	all	Do veramente il massimo per raggiungere gli obiettivi dell'esercito svizzero.

A.4.4.3 Work effort: persistence.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
$WE\text{-}P_{\text{GIVUP}}$	4431	9.2	Likert/abs.+NA	[1, 6]	5.333	0.729	−1.319	3.591	2806	0.5%

language	subsample	text
English	all	I do not give up quickly when something does not work well.
German	all	Ich gebe nicht so schnell auf, wenn etwas nicht gut läuft.
French	all	Je n'abandonne pas si vite quand quelque chose ne va pas bien.
Italian	all	Non mi arrendo facilmente, anche quando qualcosa non funziona come dovrebbe.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
$WE\text{-}P_{\text{DIFFI}}$	4432	9.2	Likert/abs.+NA	[1, 6]	5.308	0.687	−0.810	1.276	2802	0.6%

language	subsample	text
English	all	I really do my best to get my work done, regardless of potential difficulties
German	all	Ich strenge mich wirklich an meine Aufgaben zu erledigen, ungeachtet allfälliger Schwierigkeiten.
French	all	Je suis vraiment rigoureux pour remplir mes tâches, indépendamment des difficultés.
Italian	all	Do il meglio di me per adempiere i compiti che mi vengono affidati, indipendentemente dalle difficoltà che possono insorgere.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
$WE\text{-}P_{\text{TOEND}}$	4433	9.2	Likert/abs.+NA	[1, 6]	5.365	0.659	−0.833	1.171	2804	0.6%

language	subsample	text
English	all	When I start an assignment I pursue it to the end.
German	all	Wenn ich eine Aufgabe beginne, führe ich sie auch zu Ende.
French	all	Je termine toujours les tâches que j'ai commencées.
Italian	all	Se inizio un compito, lo porto a termine.

A.4.5 Army-life balance

Army-life balance (ALB) was measured using the scale by (Schuller & Rau, 2013). In this measure, items for reservists were adapted so that the first 4 items represent one common scale for employees and reservists, which measures negative spillover from the army A, private obligations O, and – only in the case of reservists – civilian labor obligations L onto free time F, or $A, O(, L) \longrightarrow F$. For the other 4 items, the scale for employees, measuring negative spillover of the army A into private obligations O, that is $A \longrightarrow O$ should not be merged with the scale for reservists, measuring negative spillover of the army A on private obligations O and civilian labor obligations L, that is $A \longrightarrow O, L$ (see chapter 3.6.3). The items were presented in random order on one page, preceded by the following information text.

The items and their statistics, as presented below, refer to negative spillover, that is low values are desirable. For the study, army-life balance was defined as the reversed scale of the 4 $A, O(, L) \longrightarrow F$ items.

item	**no.**	**pos.**	**format**	n
ALB	45xx	19.1	info text	2820

language	**subsample**	**text**
English	employees	*no translation*
English	reservists	*no translation*
German	employees	**Die folgenden Aussagen beziehen sich auf Ihre berufliche Tätigkeit bei der Schweizer Armee, Ihre privaten Verpflichtungen und Ihre Freizeit.** Es liegt in Ihrem Ermessen, die Grenze zwischen privaten Verpflichtungen und Freizeitaktivitäten zu ziehen.
German	reservists	**Die folgenden Aussagen beziehen sich auf Ihre Dienstzeit (z.B. WK oder SK).** Es liegt in Ihrem Ermessen, die Grenze zwischen privaten Verpflichtungen und Freizeitaktivitäten zu ziehen.
French	employees	**Les énoncés suivants concernent votre activité professionnelle auprès de l'armée suisse, vos obligations privées et votre temps libre.** Dans les énoncés suivants, la délimitation entre les obligations privées et le temps libre est laissée à votre propre appréciation.
French	reservists	**Les énoncés suivants concernent votre temps au service (p.e. CR ou C EM).** Dans les énoncés suivants, la délimitation entre les obligations privées et le temps libre est laissée à votre propre appréciation.
Italian	employees	**Le seguenti affermazioni si riferiscono alla sua attività professionale presso l'esercito svizzero, ai suoi doveri privati ed al suo tempo libero.** Nelle seguenti affermazioni starà a lei definire il confine tra doveri privati e tempo libero.
Italian	reservists	**Le seguenti affermazioni si riferiscono al periodo in cui presta servizio (ad esempio durante il CR o C SM).** Nelle seguenti affermazioni starà a lei definire il confine tra doveri privati e tempo libero.

A.4.5.1 $A, O(, L) \longrightarrow F$.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
$S^{\text{LOWNRG}}_{A,O(,L)\rightarrow F}$	4511	18.2	Likert/abs.+NA	[1, 6]	2.862	1.341	0.426	−0.672	2676	5.1%

language	subsample	text
English	employees	Once I am done with my work and my private obligations, I have little energy left to enjoy what is left of my spare time.
English	reservists	Once I am done with my service, private, and work obligations, I have little energy left to enjoy what is left of my spare time.
German	employees	Wenn ich meine Arbeit und meine privaten Pflichten erledigt habe, fehlt mir die Kraft meine Freizeit richtig zu geniessen.
German	reservists	Wenn ich meine dienstlichen, privaten und beruflichen Pflichten erledigt habe, fehlt mir die Kraft meine Freizeit richtig zu geniessen.
French	employees	Une fois mes obligations professionnelles et privées réglées, il me manque la force nécessaire pour profiter pleinement de mon temps libre.
French	reservists	Une fois mes obligations de service, professionnelles et privées réglées, il me manque la force nécessaire pour profiter pleinement de mon temps libre.
Italian	employees	Una volta adempiuti i miei doveri professionali e privati, non mi resta la forza per godermi a pieno il tempo libero.
Italian	reservists	Una volta adempiuti i miei obblighi di servizio, professionali e privati, non mi resta la forza per godermi a pieno il tempo libero.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
$S^{\text{CANTSW}}_{A,O(,L)\rightarrow F}$	4512	18.2	Likert/abs.+NA	[1, 6]	2.745	1.320	0.526	−0.507	2681	4.9%

language	subsample	text
English	employees	Because my work and private obligations are so consuming, I have difficulty switching off during spare time.
English	reservists	Because my service, work, and private obligations are so consuming, I have difficulty switching off during spare time.
German	employees	Weil mich meine Arbeit und meine Pflichten so sehr beschäftigen, kann ich in meiner Freizeit nicht richtig abschalten.
German	reservists	Weil mich meine dienstlichen, privaten und beruflichen Pflichten so sehr beschäftigen, kann ich in meiner Freizeit nicht richtig abschalten.
French	employees	Mon travail et mes obligations me préoccupent tellement que je n'arrive pas à déconnecter lors de mon temps libre.
French	reservists	Mon service, mon travail et mes obligations me préoccupent tellement que je n'arrive pas à déconnecter lors de mon temps libre.
Italian	employees	Non riesco a staccare la spina nel tempo libero, perché il mio lavoro e i miei doveri privati mi impegnano troppo.
Italian	reservists	Non riesco a staccare la spina nel tempo libero, perché il servizio, il lavoro e i doveri privati mi impegnano troppo.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
$S^{\text{LOWTIM}}_{A,O(,L)\to F}$	4513	18.2	Likert/abs.+NA	[1, 6]	2.986	1.385	0.338	−0.769	2685	4.8%

language	subsample	text
English	employees	Looking at my life from afar, I have little time for spare time due to my work and private obligations.
English	reservists	Looking at my life from afar, I have little time for spare time due to my duty, work, and private obligations.
German	employees	Wenn ich mir mein Leben so ansehe, bleibt mir neben meiner Arbeit und meinen privaten Verpflichtungen keine eigentliche Freizeit mehr.
German	reservists	Wenn ich mir mein Leben so ansehe, bleibt mir neben meinem Dienst und meinen privaten, beruflichen Verpflichtungen keine eigentliche Freizeit mehr.
French	employees	Lorsque je jette un regard sur ma vie, je me rends compte qu'il ne me reste à côté de mes obligations professionnelles et privées pas de réel temps libre.
French	reservists	Lorsque je jette un regard sur ma vie, je me rends compte qu'il ne me reste à côté de mes obligations de service, professionnelles et privées pas de réel temps libre.
Italian	employees	Se guardo la mia vita mi accorgo che, oltre al lavoro e ai doveri privati, non mi resta alcun tempo libero.
Italian	reservists	Se guardo la mia vita mi accorgo che, oltre al servizio, al lavoro e ai doveri privati, non mi resta alcun tempo libero.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
$S^{\text{MAJOBL}}_{A,O(,L)\to F}$	4514	18.2	Likert/abs.+NA	[1, 6]	3.262	1.348	0.112	−0.836	2679	5.0%

language	subsample	text
English	employees	My work and private obligations make up the majority of my life. This leaves me with little spare time.
English	reservists	My service, work, and private obligations make up the majority of my life. This leaves me with little spare time.
German	employees	Meine Arbeit und die privaten Verpflichtungen machen einen Grossteil meines Lebens aus. Freizeit bleibt da nicht mehr übrig.
German	reservists	Meinen Dienst und die privaten/beruflichen Verpflichtungen machen einen Grossteil meines Lebens aus. Freizeit bleibt da nicht mehr übrig.
French	employees	Mon travail et les obligations privées constituent une si grande partie de ma vie qu'il ne me reste plus de temps libre.
French	reservists	Mon service, mon travail et les obligations privées constituent une grande partie de ma vie. Il ne reste plus grand-chose pour les loisirs.
Italian	employees	Il mio lavoro e i miei doveri privati costituiscono gran parte della mia vita. Di tempo libero non ne resta.
Italian	reservists	Il mio servizio, il mio lavoro e i miei doveri privati costituiscono gran parte della mia vita. Di tempo libero non ne resta.

A.4.5.2 $A \longrightarrow O$.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
$S^{\text{EXHAUS}}_{A\to O}$	4521	18.3	Likert/abs.+NA	$[1, 6]$	2.875	1.227	0.359	-0.521	1884	5.9%

language	subsample	text
English	all	Because my work is so consuming, I have difficulty concentrating on my private obligations.
German	all	Da ich nach der Arbeit so erschöpft bin, kann ich mich schlecht auf meine privaten Pflichten konzentrieren.
French	all	Je suis tellement épuisé après le travail que j'ai de la peine à me concentrer sur mes obligations privées.
Italian	all	Sono talmente esausto dopo il lavoro, che faccio fatica a concentrarmi sui miei doveri privati.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
$S^{\text{FORGET}}_{A\to O}$	4522	18.3	Likert/abs.(R)+NA	$[1, 6]$	3.482	1.299	0.095	-0.697	1889	5.6%

language	subsample	text
English	all	I can set aside thoughts about work when I start dealing with my private obligations.
German	all	Die Arbeit ist für mich vergessen, wenn ich meinen privaten Pflichten nachgehe.
French	all	J'oublie le travail dès que je vaque à mes obligations privées.
Italian	all	Quando svolgo i miei doveri privati, mi dimentico completamente del lavoro.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
$S^{\text{NOPLAN}}_{A\to O}$	4523	18.3	Likert/abs.+NA	$[1, 6]$	2.939	1.397	0.452	-0.658	1892	5.5%

language	subsample	text
English	all	Because my workload is difficult to plan, I have problems ensuring my private obligations are dealt with.
German	all	Weil meine Arbeitszeiten schlecht planbar sind, habe ich Schwierigkeiten private Pflichten einzuhalten.
French	all	J'ai du mal à respecter mes obligations privées parce que mes horaires de travail sont difficiles à planifier.
Italian	all	Faccio fatica a mantenere i miei doveri privati, perché i miei orari di lavoro sono difficili da prevedere.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
$S^{\text{EASILY}}_{A\to O}$	4524	18.3	Likert/abs.(R)+NA	$[1, 6]$	3.140	1.224	0.385	-0.454	1891	5.5%

language	subsample	text
English	all	I easily manage both my work- and private obligations.
German	all	Es fällt mir leicht, meine beruflichen und privaten Verpflichtungen zeitlich unter einen Hut zu bringen.
French	all	Il est facile pour moi de concilier mes obligations professionnelles et privées.
Italian	all	È facile far convivere temporalmente doveri professionali e privati.

A.4.5.3 $A \longrightarrow O, L$.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
$S^{\text{EXHAUS}}_{A \to O, L}$	4531	18.3	Likert/abs.+NA	[1, 6]	2.766	1.343	0.468	−0.591	789	3.5%

language	subsample	text
English	all	Because my service is so consuming, I have difficulty concentrating on my private and professional obligations.
German	all	Da ich nach dem Dienst so erschöpft bin, kann ich mich schlecht auf meine privaten und beruflichen Pflichten konzentrieren.
French	all	Je suis tellement épuisé après le service que j'ai de la peine à me concentrer sur mes obligations privées et professionnelles.
Italian	all	Sono talmente esausto dopo il servizio, che faccio fatica a concentrarmi sui miei doveri privati e professionale.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
$S^{\text{FORGET}}_{A \to O, L}$	4532	18.3	Likert/abs.(R)+NA	[1, 6]	3.524	1.353	−0.085	−0.777	790	3.4%

language	subsample	text
English	all	I can set aside thoughts about my service when I start dealing with my private and professional obligations.
German	all	Der Dienst ist für mich vergessen, wenn ich meinen privaten und beruflichen Pflichten nachgehe.
French	all	J'oublie le service dès que je vaque à mes obligations privées et professionnelles.
Italian	all	Quando svolgo i miei doveri privati, mi dimentico completamente del servizio.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
$S^{\text{NOPLAN}}_{A \to O, L}$	4533	18.3	Likert/abs.+NA	[1, 6]	2.855	1.389	0.464	−0.601	786	3.9%

language	subsample	text
English	all	Because my service is difficult to plan, I have problems ensuring my private and professional obligations are dealt with.
German	all	Weil meine Dienstzeiten schlecht planbar sind, habe ich Schwierigkeiten private und berufliche Pflichten einzuhalten.
French	all	J'ai du mal à respecter mes obligations privées et professionnelles parce que mon temps de service est difficile à planifier.
Italian	all	Faccio fatica a mantenere i miei doveri privati e professionali, perché i miei orari di servizio sono difficili da prevedere.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
$S^{\text{EASILY}}_{A \to O, L}$	4534	18.3	Likert/abs.(R)+NA	[1, 6]	3.354	1.343	0.304	−0.676	791	3.3%

language	subsample	text
English	all	I easily manage my service-, work-, and private obligations.
German	all	Es fällt mir leicht, meine dienstlichen, privaten und beruflichen Verpflichtungen zeitlich unter einen Hut zu bringen.
French	all	Il est facile pour moi de concilier mes obligations de service avec celles privées et professionnelles.
Italian	all	È facile far convivere temporalmente obblighi di servizio, professionali e privati.

A.5 Control Variables

The missing statistics do not include attrition (chapter 3.5.4). See chapter 3.6.4 for control details.

A.5.1 Social desirability

Impression management *SD-I* as a sub-dimension of social desirability relied on a scale by Winkler et al. (2006). Randomly ordered items were preceded by a deliberately biasing introduction:

item	no.	pos.	format	*n*
SD-I	511x	11.2	info text	2820

language	subsample	text
English	all	*no translation*
German	all	In den nächsten Fragen geht es um ethisches Verhalten. In welchem Ausmass treffen die folgenden Aussagen auf Sie persönlich zu?
French	all	Les questions suivantes se rapportent au comportement éthique. Dans quelle mesure êtes-vous d'accord sur les énoncés suivants?
Italian	all	Nelle prossime domande si parla di comportamento etico in diverse situazioni della vita quotidiana. In quale misura le seguenti frasi la riguardano personalmente?

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	*n*	missing
$SD\text{-}I_{\text{CHA}}$	5111	11.3	Likert/abs.(R)+NA	[1, 6]	4.716	1.428	−1.021	−0.022	2723	3.4%

language	subsample	text
English	all	I have received too much change from a salesperson without telling him or her.
German	all	Ich habe schon mal zu viel Wechselgeld zurückbekommen und nichts gesagt.
French	all	Il m'est déjà arrivé de ne rien dire lorsque l'on me rendait de la monnaie en trop.
Italian	all	Mi è già capitato di ricevere più resto del dovuto e di non dire niente.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	*n*	missing
$SD\text{-}I_{\text{NOL}}$	5112	11.3	Likert/abs.+NA	[1, 6]	5.008	0.845	−1.299	3.564	2771	1.7%

language	subsample	text
English	all	*no translation*
German	all	Ich bin immer ehrlich zu anderen.
French	all	Je suis toujours honnête avec les autres.
Italian	all	Sono sempre onesta/o con gli altri.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	*n*	missing
$SD\text{-}I_{\text{ADV}}$	5113	11.3	Likert/abs.(R)+NA	[1, 6]	5.039	1.009	−1.140	1.320	2760	2.1%

language	subsample	text
English	all	There have been occasions when I have taken advantage of someone.
German	all	Ich habe gelegentlich mal jemanden ausgenutzt.
French	all	Il m'est déjà arrivé de profiter de quelqu'un.
Italian	all	Mi è capitato ogni tanto di sfruttare qualcuno.

A.5.2 Tenure

Employee tenure figures $TENURE_{\text{Emp}}$ were available through organizational data. Service tenure $TENURE_{\text{Ser}}$ was calculated based on the following question. The day of reference was October 1, 2015. See chapter 3.6.3.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
$TENURE_{\text{Ser}}$	5210	17.1	ratio	$[1, 51]$	19.448	11.205	0.220	-0.999	2540	1.0%

language	subsample	text
English	all	*no translation*
German	all	In welchem Jahr haben Sie Ihre Rekrutenschule begonnen?
French	all	En quelle année avez-vous commencé votre école de recrue?
Italian	all	In che anno ha cominciato la scuola reclute?

A.5.3 Rank

Organization data on rank $RANK$ was complete for military professionals and senior active reservists, but not for civilian employees. Thus, a statement of rank was required from all participants, to complete missing data, and also to detect fraudulent response behavior. All options can be found in table 2.2.

item	no.	pos.	format	range	median	S. D.	skew	E. K.	n	missing
$RANK$	5310	3.2	ordinal	$[1, 32]$	17	7.780	-0.113	-0.839	2928	0.0%

language	subsample	text
English	all	What is your current or last rank before leaving active duty?
German	all	Welchen militärischen Grad tragen Sie oder trugen Sie zuletzt?
French	all	Quel est ou quel était votre grade?
Italian	all	Qual è o quale è stato il suo ultimo grado?

A.5.4 Service branch

item	no.	pos.	format	range	mode	n	missing
$BRANCH$	5410	20.2	nominal	see table 3.20	infantry	1957	2.7%

language	subsample	text
English	all	Which branch of the service do you belong to?
German	all	Welcher Truppengattung oder welchem Dienstzweig gehören Sie aktuell an?
French	all	A quel corps de troupe appartenez-vous?
Italian	all	A quale arma o servizio ausiliario appartiene?

A.5.5 Employability

Employability *EMPLO* was measured using three items from Janssens et al. (2003). The items were preceded by the following statement:

item	no.	pos.	format	n
EMPLO	551x	10.4	info text	2820

language	subsample	text
English	employees	*no translation*
English	reservists	*no translation*
German	employees	Die folgenden Aussagen beziehen sich auf die Schweizer Armee als Ihre Arbeitgeberin.
German	reservists	Die folgenden Aussagen beziehen sich auf Ihre aktuelle Arbeitssituation.
French	employees	Les énoncés suivants font référence à l'armée suisse en tant que votre employeur.
French	reservists	Les énoncés suivants font référence à votre situation de travail actuelle.
Italian	employees	Le seguenti affermazioni si riferiscono all'esercito svizzero in veste di datore di lavoro.
Italian	reservists	Le seguenti affermazioni si riferiscono alla sua situazione di lavoro attuale.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
$EMPLO_{CON}$	5511	10.5	Likert/abs.+NA	$[1, 6]$	4.491	1.213	-0.830	0.444	2676	5.1%

language	subsample	text
English	all	I am confident that I would find employment if I started looking.
German	all	Ich bin zuversichtlich, dass ich eine andere Arbeitsstelle finden würde, wenn ich anfangen würde zu suchen.
French	all	Je pense pouvoir trouver un autre poste si je me mettais à chercher.
Italian	all	Sono convinta/o che troverei un nuovo posto di lavoro se iniziassi a cercarlo.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
$EMPLO_{DIF}$	5512	10.5	Likert/abs.(R)+NA	$[1, 6]$	4.198	1.455	-0.565	-0.545	2656	5.8%

language	subsample	text
English	all	It would be difficult to find new employment should I leave my current job.
German	all	Wenn ich meinen Arbeitgeber verlasse, ist es schwierig für mich eine neue Anstellung zu finden.
French	all	Si je quitte mon employeur, il me sera difficile de trouver du travail.
Italian	all	Se lasciassi il mio datore di lavoro sarebbe difficile per me trovare un nuovo impiego.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
$EMPLO_{EQU}$	5513	10.5	Likert/abs.+NA	$[1, 6]$	3.474	1.396	-0.068	-0.717	2584	8.4%

language	subsample	text
English	all	I will quickly find equivalent employment if I am made redundant.
German	all	Falls ich entlassen werde, würde ich sofort eine gleichwertige Arbeitsstelle finden.
French	all	Si je venais à être licencié(e), je trouverais immédiatement un poste similaire.
Italian	all	Se mi licenziassero troverei subito un posto di lavoro equivalente all'interno o all'esterno dell'organizzazione.

A.5.6 Demographic variables

Several demographic variables were asked at the beginning of the questionnaire. The corresponding answering options and frequencies can be found in chapter 3.5.3.

item	no.	pos.	format	range	mode	n	missing
LANGUAGE	5611	4.1	nominal	see table 3.12	German	2928	0.0%

language	subsample	text
English	all	What language is your mother-tongue?
German	all	Welches ist Ihre Muttersprache?
French	all	Quelle est votre langue maternelle?
Italian	all	Qual è la sua lingua materna?

item	no.	pos.	format	range	mode	n	missing
MARITAL	5611	4.3	nominal	see table 3.12	married	2918	0.3%

language	subsample	text
English	all	What is your civil status?
German	all	Welches ist Ihr Zivilstand?
French	all	Quel est votre état civil?
Italian	all	Qual è il suo stato civile?

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
δ_{children}	5613	4.4	boolean	$\{0, 1\}$	0.506	0.500	-0.023	-2.001	2834	3.2%

language	subsample	text
English	all	Do you have children?
German	all	Haben Sie Kinder?
French	all	Avec vous des enfants ?
Italian	all	Ha figli?

item	no.	pos.	format	range	median	S. D.	skew	E. K.	n	missing
EDUC	5614	4.5	ordinal	$[4, 8]$	7	1.282	-0.298	-1.509	2928	0.0%

language	subsample	text
English	all	What is your highest level of education (i. e. completed)?
German	all	Was ist Ihre höchste abgeschlossene Ausbildung?
French	all	Quel est votre niveau de formation le plus élevé?
Italian	all	Qual è la sua massima formazione conseguita?

Comment.
The scale allowed 8 levels of education, but none of the participants indicated an educational level below 4 (compulsory school; see table 3.12).

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
AGE	5615	4.2	ratio	[19.8, 64.8]	40.236	11.205	0.169	−1.033	2926	0.1%

language	subsample	text
English	all	What year were you born?
German	all	In welchem Jahr sind Sie geboren?
French	all	Quelle est votre année de naissance?
Italian	all	Qual è il suo anno di nascita?

Comment.
Age was available from organizational data for all participants but those senior active reservists who were incorporated in one particular brigade. Thus the question was hidden for most participants. Statistics refer to the merged data.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
GENDER	5616	obj.	boolean	{0, 1}	0.049	0.216	4.189	15.555	2928	0.0%

language	subsample	text
all	all	*completely available from system data*

A.5.7 Organizational variables

Several organizational variables were asked at the beginning of the questionnaire. The corresponding answering options and frequencies can be found in chapter 3.5.3.

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	n	missing
EMPLEVEL	5711	3.5	ordinal	[0, 11]	10	2.686	−2.106	2.971	2928	0.0%

language	subsample	text
English	all	Which is your level of employment in percentages?
German	all	Wie hoch ist Ihr Beschäftigungsgrad in %?
French	all	Quel est votre taux d'occupation?
Italian	all	Qual'è la sua percentuale di prestazione lavorativa?

Comment.
Employment level was available from organizational data for all employees. Thus the question was visible for senior active reservists only. Code «0» was labeled «not employed», code «1» was labeled «1% - 10%», code «2» was labeled «11% - 20%», and so on. Code «11» was labeled «according to service needs» (see tables 3.13 and 3.14). Statistics refer to the merged data.

item	no.	pos.	format	range	mode	n	missing
DUTY	5712	3.1	nominal	–	active reserve status	2080	0.0%

language	subsample	text
English	all	Are or were you required to perform mandatory service?
German	all	Waren oder sind Sie dienstpflichtig?
French	all	Etiez-vous ou êtes-vous astreint au service ?
Italian	all	Sottosta o sottostava ad un obbligo di servizio?

item	no.	pos.	format	range	median	S. D.	skew	E. K.	*n*	missing
LK	5713	obj.	ordinal	[9, 37]	21	4.764	0.004	−0.448	2081	0.0%

language	subsample	text
all	employees	*completely available from system data*

item	no.	pos.	format	range	mean	S. D.	skew	E. K.	*n*	missing
WAGE	5714	3.3	ordinal	[1, 8]	4	1.872	0.140	−0.689	836	1.3%

language	subsample	text
English	all	*no translation*
German	all	Wie hoch ist Ihr Brutto-Einkommen?
French	all	Quel est votre salaire brut?
Italian	all	A quanto ammonta il suo salario lordo?

item	no.	pos.	format	range	mode	*n*	missing
SECTOR	5715	3.4	nominal	see table 3.14	management, administration,...	847	0.0%

language	subsample	text
English	reservists	*no translation*
German	reservists	Welcher Berufskategorie gehören Sie an?
French	reservists	A quelle catégorie professionnelle appartenez-vous, respectivement dans quel domaine étudiez-vous?
Italian	reservists	Di quale categoria professionale fa parte, rispettivamente, in quale ambito studia?

item	no.	pos.	format	range	mode	*n*	missing
UB	5716	10.1	nominal	see table 3.13	Land Forces	1969	1.2%

language	subsample	text
English	employees	Which ulterior branch do you work for?
German	employees	In welcher OE DU CdA arbeiten Sie?
French	employees	Dans quelle unité organisationnelle subordonnée au CdA travaillez-vous?
Italian	employees	In quale unità organizzativa direttamente subordinata al capo dell'esercito (OE DU CdA) lavora?

Appendix B

Matrix Algebra

Morpheus: You take the blue pill, the story ends.
You wake up in your bed and believe
whatever you want to believe.
You take the red pill, you stay in Wonderland,
and I show you how deep the rabbit hole goes.

The Matrix [Motion Picture] (Silver (Producer) & The Wachowski Brothers (Directors), 1999)

B.1 A measure for Construct Similarity

Equation (5.1) defined the HRM matrix, relating the three dimensions of the psychological contract construct to the three dimensions of the organizational commitment construct:

$$HRM = \begin{pmatrix} r_{tc} & r_{ta} & r_{tn} \\ r_{rc} & r_{ra} & r_{rn} \\ r_{ic} & r_{ia} & r_{in} \end{pmatrix} . \tag{5.1}$$

According to chapter 5.2.6, the stronger the correspondence between the two constructs in terms of proposition 5.1 is, the closer the HRM-matrix gets to the identity matrix I_3. Based on this ansatz, I establish a measure for the distance between, or deviance of the two constructs. This can be done using the spectrum norm (Horn & Johnson, 2012, ch. 5). The spectrum norm is a matrix norm induced by the Euclidian norm $\|x\|_2$. Intuitively explained, this is a sort of Euclidian «length» of a matrix: the spectrum norm $\|A\|_2$ is the maximal scaling factor when applying the matrix A on a unit vector. However, the calculation of the norm is not that intuitive. Yet it can be shown that $\|A\|_2 = \sqrt{\mu_{\max}(A^H A)}$, that is the square root of the maximal eigenvalue $\mu_{\max}$ of the product of the conjugate transpose of A with A itself. Thus,

$$\theta_H \doteq \|HRM - I_3\|_2 \tag{B.1}$$

is a measure of the deviance of the two constructs in a given sample and with given measures. With and only with $HRM = I_3$ we have $\theta_H = 0$. Thus, the lower θ_H, the lower the deviance of the two constructs. As a point of reference, θ_H for the original model (equation (5.3) in chapter 5.4.2) is $\theta_H = 1.149$.[91] We now have a criterion and a reference point for deciding whether dropping certain variables reduces or increases the deviance between the two constructs. This, in turn, may guide the way to a refinement of these constructs.

Given that the proposed measure is a novelty, its sensitivity for changes should be investigated first. It is conceivable to separate changes in F items and in OC items. Equally, one may separate the dropping of items, addition of items, or a combination of both. However, in order to compare the effects, it seems advisable to change items *ceteris paribus*, which means that for either comparison F or OC items should be changed, but not both. This leads to

Proposition B.1:

a. A refinement of the organizational commitment construct through an omission of items that are less in line with psychological contract will reduce θ_H.
b. A refinement of the psychological contract construct through an omission of items that are less in line with organizational commitment will reduce θ_H.

91 I perform the calculation using excel, where I derive the coefficients of the characteristic polynomial $A^H A$. I then include the solutions to this cubic equation, which are exactly the three eigenvalues, manually, before excel calculates the square root of the greatest eigenvalue.

In contrast, the dropping of items that are, according to theoretical reasoning, *more* in line with the alternative construct, should *inflate* the difference between concepts – or, in other terms, raise the discriminant validity:

Proposition B.2:

a. A defilement of the organizational commitment construct through an omission of items that are more in line with psychological contract will inflate θ_H.
b. A defilement of the psychological contract construct through an omission of items that are more in line with organizational commitment will inflate θ_H.

I have to admit that propositions B.1 and B.2 are somewhat tautological. However, they are only a first approach to the proposed θ_H measure. Once the expected behavior in θ_H is revealed, exploratory analysis becomes possible, such as whether changes in psychological contract items or changes in organizational commitment are more important. Later, in another stage, significance tests for θ_H may be developed. However, this goes beyond the scope of the present dissertation.

It is obviously measurement-specific to decide which of a concept's items are more or less in line with the other concept. Further, it seems helpful to take the model from chapter 5.4.1 as a baseline. From these I determine 3 psychological contract fulfillment items F_i *not well* in line with the TCM, and 3 organizational commitment items OC_j that do not fit well with the three layers of psychological contracts. I chose one item of each psychological contract layer and of each organizational commitment component to assure that a general rather than a dimension-specific effect of refinement is tested. Similarly, I determine 3 psychological contract fulfillment items F_i and 3 organizational commitment items OC_j fitting *particularly well* with the opposite constructs to test proposition B.2.

Of the OC_{cont} items, OC_{DRUPT} does not refer to exchange and is thus least in line with transactional contracts. In terms of OC_{affe}, OC_{PROUD} refers to some part of affective commitment that does not mirror the underlying binding into an exchange process, but rather the emotional note of identification (Kelman, 1958). With regard to OC_{norm}, OC_{OBLIG} refers to a normative pressure stemming from one's colleagues rather then from the valued cause or principle (Thompson & Bunderson, 2003, p. 574). Therefore, according to proposition B.1.a, dropping these items should reduce the difference between the psychological contract and organizational commitment.

Of the F_{trans} items, F_{RESPO} seems to match least the definition of OC_{cont}, because it does not refer to costs or rewards. With respect to the F_{relat} items, F_{MYINT} reflects cognition rather than emotion, but cognition corresponds to continuance commitment rather than to affective commitment (Kanter, 1968, p. 504). Finally, F_{CONTR} may exhibit less normative pressure, when compared to the other F_{ideat} items, and is therefore least in congruence with OC_{norm}. Thus I drop these items to test proposition B.1.b.

Of the OC_{cont} items, OC_{PMUCH} best reflects the exchange in economic currency typical for transactional contracts (e. g., Rousseau, 1990, p. 390). With respect to OC_{affe}, OC_{BLONG} best reflects the long term exchange inherent in relational contracts (Rousseau, 1990). In terms of OC_{norm}, OC_{NOTRI} takes note of the fact that the salient beneficiary of the ideational contract is *not* the self (Thompson & Bunderson, 2003,

p. 575). Therefore, according to proposition B.2.a, dropping these items should inflate the difference between the psychological contract and organizational commitment.

Of the F_{trans} items, F_{PAY} seems to match best the definition of OC_{cont}, given that pay is one of the most explicit rewards. With respect to the F_{relat} items, F_{IBELO} matches the affective element in OC_{affe} well. Finally, with regard to the F_{ideat} items, F_{INVOL} refers better to the congruence aspect of OC_{norm} than the other items. Thus I omit these items to test proposition B.2.b.

I now explore the propositions empirically. Proposition B.1 involves the elimination of items least in line with the other construct. I start with refining the OC. Therefore, I eliminate the items least in line with the psychological contract construct, namely OC_{DRUPT}, OC_{PROUD}, and OC_{OBLIG}. Since three items were already removed in chapter 5.4.1, only 2 OC items are left per component. This is not only below recommendations (MacCallum et al., 1999), but also entails some technical issues, namely for the OC_{cont} component which shows reliability concerns ($CR_{\text{cont}} = .618 < .707$), low convergent validity ($AVE_{\text{cont}} = .447 < .5$), and Heywood cases ($\lambda_{OC_{\text{PMUCH}} \leftarrow OC_{\text{cont}}} = 1.22$). Thus I reintroduce OC_{DRUPT} and drop only OC_{PROUD} and OC_{OBLIG}. Despite the fact that two factors OC_{affe}, OC_{norm} still have only two items, model fit is good (χ^2/df) to excellent (other fit indices, see table B.1). Of the according HRM' matrix, $\theta'_H = 1.141 < \theta_H$, in line with proposition B.1.a. That is, a refinement of the OC measurement does indeed make the two concepts converge. Here, I have to admit that no test statistic is known to that point which could say whether this convergence is significant or not. This is why only explorative tests of propositions, rather than rigid tests of a hypotheses, are performed in this appendix.

From a technical point of view, refinement of the F through the elimination of F_{RESPO}, F_{MYINT}, and F_{CONTR} is less problematic, given that 4 items per factor remain. Consequently, the resulting model shows good to excellent model fit (table B.1). In line with expectations, $\theta''_H = 1.133 < \theta_H$. Thus, a refinement of F again leads to a convergence of the two constructs, in line with proposition B.1.b.

Table B.1: Fit indices[a] for five different Confirmatory Factor Analysis models for for refinement and defilement of the model in figure 5.3. $n = 2\,697$ for all models.

Model[c]	χ^2	df	χ^2/df	$\Delta\chi^2$	$SRMR$	CFI	TLI	$RMSEA$ [$CI_{90\%}$]
Baseline model	2 564.401	939	2.731		.0382	.967	.962	.018 [.017, .019]
OC refinement	2 246.970	767	2.930	317.431	.0371	.966	.959	.019 [.018, .020]
F refinement	1 991.237	687	2.898	573.164	.0394	.968	.961	.019 [.018, .020]
OC defilement	1 511.981	687	2.201	1 052.420	.0302	.979	.974	.015 [.014, .016]
F defilement	2 136.131	695	3.074	428.270	.0420	.967	.960	.020 [.019, .021]

[a] $SRMR$ Standardized Root Mean Square of Residuals, CFI Comparative Fit Index, TLI Tucker Lewis Index, $RMSEA$ Root Mean Square Error Approximation.
[b] OC refinement used for proposition B.1.a. and F refinement used for proposition B.1.b.
OC defilement used for proposition B.2.a. and F defilement used for proposition B.2.b.

The goal of proposition B.2 is the exact opposite of the proposition above. Removing items that are particularly close to the theoretical concept of the other construct should diverge both constructs. Therefore, OC_{PMUCH}, OC_{BLONG}, and OC_{NOTRI} are removed. Defilement of the model leads to a model

free of validity concerns, although only two items per *OC* component remain, and as well as surprisingly good fit indices. The latter is important to exclude the possibility that the change in θ_H is due to a bad model. This time, and again in line with expectations, $\theta_H''' = 1.155 > \theta_H$. That is, defilement does indeed increase divergence between the two constructs, supporting proposition B.2.a.

For proposition B.2.b, I drop F_{PAY}, F_{IBELO}, and F_{INVOL}. Given that $F_{\text{t-mone}}$ has only one item left, I remove the 2nd order structure of F_{trans}. As a consequence, *CR* and *AVE* fall below the recommended thresholds, indicating bad construct validity. A remedy would be to keep F_{PAY}. However, the model without F_{PAY} includes no Heywood cases, and I consider the lack in convergent validity alone to be a minor concern;[92] according to table B.1, model fit is still good to excellent. Furthermore, F_{PAY} reflects OC_{cont} particularly well, thus I definitely drop it. Within this model, $\theta_H'''' = 1.162 > \theta_H$. Apparently, defilement in *F* components diverges the two constructs as well. Thus proposition B.2.b is supported.

To summarize, propositions B.1 and B.2 regarding refinements and defilements are at least supported by trend. If, as suggested here, a construct may selectively be converged towards or diverged away from another construct, this opens a perspective for further development of either of the constructs. Nevertheless, the above mentioned lack of significance testing has to be acknowledged. A possible development is presented in chapter B.3.

B.2 A measure for Cognitive Monopsony

An alternative approach to comparing the degree of monopsony, as suggested in hypothesis 5.5, is to directly measure divergence between organizational commitment and vocational commitment for a given subsample. Therefore, the θ measure can again be applied, with an according matrix. The element r_{jk} of the new matrix $MO\Psi$ (for *Monopsony*) corresponds to the loading of the j^{th} organizational commitment component OC_j on the k^{th} VC component VC_k in the framework of a structural equation model. With the notation $j, k = \text{c}, \text{a}, \text{n}$ the $MO\Psi$ matrix reads

$$MO\Psi \doteq \begin{pmatrix} r_{\text{cc}} & r_{\text{ca}} & r_{\text{cn}} \\ r_{\text{ac}} & r_{\text{aa}} & r_{\text{an}} \\ r_{\text{nc}} & r_{\text{na}} & r_{\text{nn}} \end{pmatrix} . \tag{B.2}$$

In this case,

$$\theta_M \doteq \| MO\Psi - I_3 \|_2 \tag{B.3}$$

is a suggested measurement for monopsony, yielding

Proposition B.3: θ_M is smaller for military professionals than for civilian employees.

92 This refers to the convergence of the F_{trans} layer in itself. A divergent validity issue would have been far more problematic, given that this proposition is about convergence and divergence *between* layers and components.

For this proposition B.3, $MO\Psi$ is given by the findings in chapter 5.4.3.

$$MO\Psi_{\text{Pro}} = \begin{pmatrix} .882 & .173 & .409 \\ .326 & .608 & .436 \\ .396 & .467 & .760 \end{pmatrix}$$

and the matrix $(1 - MO\Psi_{\text{Pro}})^T(1 - MO\Psi_{\text{Pro}})$ has the characteristic polynomial

$$-\mu^3 + 1.0936750\mu^2 - 0.0753223\mu = -0.0000048\,,$$

corresponding to the eigenvalues $\mu_1 = 1.101982$, $\mu_2 = 0.000066$, and $\mu_3 = 0.073787$, yielding

$$\theta_{M,\text{Pro}} = \|1 - MO\Psi_{\text{Pro}}\|_2 = 1.04975339\,, \tag{B.4}$$

the spectrum norm of $1 - MO\Psi_{\text{Pro}}$. Similarly,

$$MO\Psi_{\text{Civ}} = \begin{pmatrix} .744 & .216 & .388 \\ .394 & .481 & .468 \\ .562 & .419 & .777 \end{pmatrix}$$

and in this case, the matrix $(1 - MO\Psi_{\text{Civ}})^T(1 - MO\Psi_{\text{Civ}})$ has the characteristic polynomial

$$-\mu^3 + 1.4474910\mu^2 - 0.1057911\mu = -0.0010148$$

and thus eigenvalues $\mu_1 = 1.370860$, $\mu_2 = 0.011340$, and $\mu_3 = 0.065291$, yielding

$$\theta_{M,\text{Civ}} = \|1 - MO\Psi_{\text{Civ}}\|_2 = 1.170837\,, \tag{B.5}$$

again the spectrum norm of $1 - MO\Psi_{\text{Civ}}$.

Comparison of equation (B.4) and equation (B.5) shows that $\theta_{M,\text{Pro}} < \theta_{M,\text{Civ}}$, in line with proposition B.3. But similar to propositions B.1 and B.2, no statistical test is available yet to determine whether this difference is significant or not.

B.3 A Possible Way to Develop Significance Tests

In both suggested applications, the issue of lack of significance tests remains. Therefore, a course of action towards such a test is suggested here. The approach is suitable to both the θ_H and the θ_M measure. Thus I write M for both HRM and $MO\Psi$.

The respective matrix M could be determined separately for B bootstrapping samples. According to Cheung and Lau (2007), $B = 1\,000$ is usually enough. Then, for these B bootstrapping samples, the spectrum norm $\|1 - M\|_2$ could be calculated. In a next step, bias-corrected estimates of confidence

intervals (Efron & Tibshirani, 1993) could be obtained and finally, Zou's (2007) procedure for significance tests based on confidence intervals could be adapted to test different θ values. However, this is likely to be a challenge of its own, given that Zou refers to Fisher's (1921) z-test for confidence intervals of correlations, and θ is not a correlation. For this and as yet unknown issues, development of such a measure goes beyond the scope of the present dissertation. However, the course of action offers at least a possible direction towards a measure that could potentially be useful in the development of Organizational Behavior constructs in general, and in the measurement of cognitive monopsony in particular.

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Curriculum vitae

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08/2001 – 03/2007	Master of Science in Physics, University of Bern, Institute for Theoretical Physics, Thesis: Higgs Boson Contributions to $\overline{B}_s^0 \rightarrow \mu^+\mu^-$ in a Two Higgs Doublet Model
08/1998 – 08/2001	Upper Secondary School Diploma (Matur), Gymnasium Linde Biel, Specialization: Music

Professional experience

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12/2009 – 04/2012	Instruction Officer in the Infantry Training Unit, Swiss Armed Forces
02/2007 – 02/2008	Teaching Assistant at the Institute for Theoretical Physics, University of Bern
10/2006 – 07/2008	Upper Secondary School Teacher in Physics and Mathematics

Military experience

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09/2004 – 03/2008	Mortar platoon leader, 2nd Company, 17th Mountain Infantry Battalion
07/2002 – 09/2004	Basic training, NCO school (mortar NCO), Infantry Officer Cadet School